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Taxing Foreign Income in Capital-Importing Countries

Thailand's Perspective

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and
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Disregarding the international dimension of tax policy is risky.
Foreign tax regimes and international tax-planning practices of
companies can frustrate domestic goals of taxation.

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This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in PRE to understand the impact of tax policy on capital formation in an open economy. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Ann Bhalla, room N10-059, extension 37699 (97 pages with tables).

In this paper, Leechor and Mintz propose a framework for analyzing international-income taxation. The standard approach, involving the user cost of capital, is extended to incorporate the role of tax policy implemented by the home country. The usual presumption that only taxes of the host country matter is shown to be invalid, except under very restricted circumstances. The authors also apply this new framework to an empirical analysis of Thailand's policy issues.

Tax provisions of home countries vary significantly. Of particular relevance are (1) whether remitted earnings are taxed at home, (2) if so, whether they receive any unilateral tax relief, that is, deduction or foreign tax credit, (3) whether the home country accepts tax sparing, which allows firms to retain the tax benefits provided at source, and (4) the scope and extent of deductible expenses, which generally differ from those of the host. These provisions may counteract the host's tax measures, particularly the use of tax concessions.

Also of interest to the host are firms' international tax planning opportunities. First, in an

increasingly integrated world economy, firms have considerable freedom in redeploying capital across countries. Second, there is substantial scope for firms to reallocate income and expenses between the host and the home countries through internal pricing policies. Third, firms can devise an advantageous financial structure by choosing appropriate debt-equity ratios and by borrowing in a country where treaty provisions are favorable. These strategic decisions can circumvent the host's effort to raise taxes.

Thailand has come to grips with many of the issues. It has sought and achieved double-taxation agreements with most of its trading partners. It has attracted substantial foreign investments and collected the attendant revenue. Its tax policy remains vulnerable in many areas, however. There are, for example, inadequate safeguards against excessive leverage, transfer pricing, and treaty shopping. Its strategy concerning tax incentives could also be strengthened to remove the barriers for extending the treaty network and enhancing regional coordination.

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TAXING FOREIGN INCOME IN CAPITAL-IMPORTING COUNTRIES:
THAILAND'S PERSPECTIVE

EXECUTIVE SUMMARY

Making tax policy in an increasingly integrated world economy is a difficult task. In recent years, a large number of theoretical and empirical studies has been undertaken to clarify the issues involved and to develop a framework for policy analysis. This report has the same basic objectives. But unlike much of the existing literature, the focus of this report is on the questions faced by developing countries in their capacity as hosts of foreign investments. The difference is essentially one of emphasis and applications, however. The basic analytical methods, as well as broader economic issues, are equally applicable to industrialized, capital exporting countries.

The main part of this report is devoted to analyzing the impact of taxation on the financing and investment decisions of multinational companies. A model is developed to incorporate tax provisions of both the host and the home countries. From this effort, new analytical results are derived. The second part of this report applies this new framework to examine issues of national welfare. As an illustration, a case study based on the tax systems of Thailand and its capital exporting countries is carried out. The third part considers the implications of current taxation on the global allocation of resources.

1. Impact of Taxation

As with traditional studies of investments, the effects of taxation are measured through the "user cost of capital", or the gross rate of return (including depreciation) required of new investments. An increase

in the user cost of capital indicates a deterioration of investment incentives, as there are fewer projects with adequate rates of return to meet a more stringent requirement. Taxation influences the user cost of capital in three ways: (i) it raises the required returns to allow for payments of taxes due; (ii) through various deductions, it lowers the net-of-tax costs of acquiring the investment goods; (iii) taxes on capital gains and personal income tend to raise the discount rates used by firms in evaluating projects. This study examines the interactions of tax rules of the host and home countries in determining the user cost of capital facing multinational firms.

Our analysis shows substantial variations in the user cost of capital found in a given host country. The variability is attributable to the following factors:

(a) Country of Ownership of Capital. Taxation of the home country affects capital income in different ways. Some countries exempt all forms of foreign-source income, thus leaving the user cost of capital to be determined by host country taxation. Some tax all forms of foreign-source income when it is repatriated to the home country, with relief granted for foreign taxes. This tax regime (known as deferral taxation) may increase taxes paid by multinational firms or reduce them, depending on relative tax rates and the rules governing tax relief. Thus, foreign affiliates located in a given host country face different user costs of capital, depending on the tax regime implemented at home.

This finding is at variance with well-known results of past studies. Many analysts have suggested that, when foreign investment is financed by retained earnings, taxation of the home country does not

matter. The basic reasoning is that home country taxation has already been capitalized in the market valuation of equity. Thus, the tax saving made possible by deferral compensates for the subsequent taxes paid. Our analysis shows that such a result holds only under very special circumstances: multinational firms must avoid remitting dividends to the home country or the capital allowances (for tax purposes) have to be identical in the host and home countries. In a general case, tax rates and provisions of the home country do enter into the user cost of capital and thereby influence investment decisions.

(b) Type of Organization. Branches and locally incorporated subsidiaries are subject to different tax treatment in the home countries. Branch income is taxed at home when it is earned (accrual taxation), whereas the income of a subsidiary is generally subject to deferral taxation. Under accrual taxation, multinational firms cannot defer home-country taxes, but can write off foreign losses against taxable income at home. Our analysis shows that under accrual taxation only the tax rules of the home country affect the user cost of capital.

(c) Rate of Remittance. Under deferral taxation, only a fraction of company income earned abroad is taxable. Similarly, only a fraction of company taxes paid abroad are creditable. This fraction is determined by the ratio of dividends remitted and taxable profits as defined at home. Our analysis suggests that the role of home-country taxes in determining the user cost of capital increases with this rate of remittance.

(d) Financial Policy. Part of the user cost of capital is the required return for the marginal source of finance. In an international context, finance may be raised from retained earnings, home-country debt and host-country debt. To the extent that real interest rates are unequal across countries, user costs of capital also vary, depending on the country in which capital is raised. In addition, the debt-equity ratio is also relevant, since the two sources of finance are not taxed equally.

(e) Net Foreign Tax Credit Position. Taxes ultimately paid at home also depend on firms' net foreign tax credit position. Excess foreign tax credits enable a firm to remit additional foreign-source income with little or no further taxation at home. A deficient foreign-tax-credit position has the opposite effects. The net foreign-tax-credit position of a firm, in turn, depends on the relative tax rates of the home and host countries as well as the extent to which the credit applies. Some capital exporters allow global crediting, in which credits arising from one host country may be applied to the income originating from another country. In other cases, foreign tax credits may be country-specific.

2. National Welfare

(a) Developing Countries in General

Tax policy may fail to serve national interest if it is based entirely on traditional, one-country framework. This section draws on the multi-country analysis presented above to indicate the scope and constraints faced by a developing country.

An important feature of policy-making in an international environment is the strategic behavior of the parties concerned.

Multinational companies, for instance, have considerable tax planning opportunities. At their disposal are: (i) the choice of financial policies; (ii) internal pricing strategies for allocating income across countries; (iii) choice of source countries to set up operations; (iv) choice of countries for repatriation of earnings to take advantage of existing tax treaties. There are also other national governments involved. Their tax rules may counteract or cancel the effects of the host country's policies. If not, new retaliatory measures may be undertaken. Many developing countries, for instance, routinely match the tax concessions provided by their neighbors.

One measure often recommended in the context of one country is to convert the traditionally defined income base of company taxation to a cash-flow base. The rationale is to remove an intertemporal distortion, which discriminates against saving. A cash-flow tax is a tax on rents or inframarginal returns, with no impact on incentives. In an international context, however, such a reform may not produce the desired result. If exemption is followed in the home countries, no further complications arise. But the earnings may also be subject to deferral or accrual taxation abroad. In this case, the tax base would be redefined according to the tax rules at home. The home country's tax regime would therefore supercede the cash-flow tax and the neutrality sought by the host would be frustrated. The host country undertaking the reform would thus lose revenue, without generating the desired incentives.

As another example, consider a capital importer's desire to raise the level of taxation on foreign affiliates (branches as well as subsidiaries) operating within its jurisdiction. If the foreign owners are under the exemption tax regime at home, the additional taxes would lower

their net income. The companies involved would therefore attempt to lower the tax burden by incurring more debt and by shifting profits to the home country (or another low-tax jurisdiction) through transfer pricing. They may also find it advantageous to undertake new investments elsewhere. Companies subject to deferral and accrual taxation are less averse to a tax increase at source, since some of the taxes paid are creditable against taxes at home. There are many restrictions applied to home-country crediting, however. First, credits for foreign taxes may be limited in many cases to the amount of home-country tax liabilities. If taxes are higher in the host country, some of the taxes paid at source will not be creditable at home. Second, non-resident withholding taxes above and beyond a stipulated percentage may not be creditable at home. Once the companies reach an excess foreign tax credit position for the desired repatriations, they would have an incentive to avoid further taxation at source, as with companies under the exemption regime. There are thus serious constraints to aggressive revenue measures.

Nor can a country attract unlimited foreign investments by offering more generous tax concessions than its competitors. The most obvious obstacle to this practice is the competitors' reaction, which includes the option of providing matching concessions. Tax incentives also fail to attract more investments if they accrue to the types of income that are taxed in the home country. Tax exemptions or reductions at source reduce foreign tax credits available and therefore increase taxes payable at home. In this case, the concessions granted represent a transfer of revenue from the host to the home country.

To avoid wasteful transfers of revenue, many developing countries seek to obtain a tax-sparing agreement in their bilateral treaties with

capital exporters. Under a tax-sparing provision, multinational companies receive foreign tax credits at home for the taxes exempted by the host. (Source taxes are deemed to have been paid.) From the host country's perspective, tax sparing ensures that the benefits of tax concessions accrue to the companies, or their owners, rather than the home country's government. Clearly, tax sparing is relevant only when the home country taxes foreign-source income and uses tax credits (as distinct from tax deductions) to relieve double taxation.

Thus a host country does not necessarily give away its share of revenue when it provides tax concessions. The extenuating circumstances are tax-sparing provisions and tax exemption of foreign-source income by home countries. More fundamental questions facing the host country remain to be answered, however: Do tax incentives actually generate additional investments? If so, are the added investments worth the loss in revenue? These questions have to be considered on a case by case basis.

(b) The Case of Thailand

Thailand has a conventional system of company taxation, with about average tax rates compared to its trading partners and relatively liberal deduction rules. Non-residents' withholding tax rates are relatively high, by the standards of OECD countries, although treaty provisions often reduce the rates somewhat. In addition, Thailand offers a variety of income tax concessions with liberal eligibility criteria. It has an extensive treaty network, covering major trading partners, with the exception of the United States--its second largest capital exporter. There are significant variations across treaties, however, with respect to tax rates and other major provisions.

At first sight, there appears to be little room for improving the taxation international income. Foreign affiliates (branches as well as subsidiaries) contribute substantial tax revenue; in fact, they pay proportionately more taxes than do purely domestic firms, according to a random sample of financial statements. Moreover, the volume of foreign investments in recent years has been very high, exceeding the levels in neighboring countries (on a per capita basis.) It is therefore tempting to regard the tax regime as being highly satisfactory, with appropriate levels of taxation in place and adequate incentives provided.

But in fact there is considerable scope for further work. The most promising area is to curtail the opportunities for tax planning on the part of multinational firms. Thailand could, for example, narrow the differentials in withholding tax rates across treaty partners to reduce the incentives for treaty-shopping and rerouting of foreign investors' earnings. It could also apply a thin-capitalization rule to disallow interest deductions on the portion of debt in excess of a given debt-equity ratio. Such a rule would also limit the transfers of revenue to the home countries in which similar deduction rules are already implemented. There is also a need to safeguard against brazen cases of transfer pricing; a form of minimum company tax is more appropriate than the current use of pervasive import tariffs for this purpose.

Thailand would also benefit from a reassessment of its tax concessions. At present there are issues of design as well as strategy. First, the revenue currently given up by Thailand becomes a transfer if the recipient companies are residents of non-treaty countries, including the United States. This issue would not arise if the incentives were to be in the forms of investment tax credits or initial allowances, rather than tax

holidays and reductions. (These alternative instruments are also less susceptible to abuses such as inter-company profit shifting within the host countries.) Second, because tax reductions and holidays are granted, Thailand has consistently required in its treaties a tax-sparing provision on the income that is subject to tax abroad. This requirement limits the country's flexibility in treaty negotiations; it has also held up the conclusion of several double taxation agreements. Third, at the current rate of capital inflows which is straining the capacity of existing infrastructure, tax inducements may no longer be necessary.

3. Implications for Global Resource Allocation

When each country pursues its own national welfare, there is no guarantee that the resulting global environment will be conducive to efficient use of resources. Efficiency requires capital to be properly allocated over time and across countries, regardless of ownership. The analysis of incentives and national policies above suggests that considerable misallocations are likely to take place under the existing international tax systems.

Capital is efficiently allocated over time (dynamic efficiency) when the rate of return (gross of tax) on capital is equal to the rate of return received by individual savers. Company taxation as implemented today creates a wedge between the returns to investment and saving, resulting in a disincentive to save. Moreover, the current international tax system creates opportunities to export taxes through the use of foreign tax credits. These opportunities encourage capital importing countries to tax capital income more than they would otherwise. (The incentives to export taxes do not exist, however, when capital exporting countries exempt foreign-source income or allow the use of tax sparing.)

Efficient allocation of capital across countries occurs when the rates of return on capital are equalized in all source countries irrespective of ownership. This condition requires both capital export neutrality as well as capital import neutrality. The analysis above suggests, however, that neither form of neutrality is attained today. The level of taxation in a given host country varies by the tax regimes of capital exporters, not equalized as required under import neutrality. Similarly, capital originating from a given country of residence is taxed at different rates depending on the form of organization and the rules of the source countries, contrary to the requirement for capital export neutrality.

It is therefore very difficult to create a neutral tax system in an international context. First, since taxation of capital income is so pervasive, fundamental reforms designed to improve dynamic efficiency may not be feasible in the foreseeable future. Second, equity is also an important policy objective, making it necessary to retain income-based taxation. Of greater promise, perhaps, is the possibility of improving capital allocation across countries. What is needed is greater harmonization of taxes on capital income as is done across states and provinces in federal countries.

Tax harmonization occurs today to a limited extent. The principal vehicle for harmonization is bilateral tax treaties, which are intended to prevent double taxation and allocate taxing power between two countries. There are considerable variations, however, in tax rates and other provisions across tax treaties. Moreover, treaty negotiations do not cover the company-income-tax provisions, which are regarded as purely domestic matters. The scope of harmonization is thus confined to non-resident

withholding taxes as well as the allocations of expenses to different jurisdictions.

A new approach is needed to achieve world-wide tax harmonization. The focus of coordination should be capital income taxation in totality, rather than a component thereof. Furthermore, a multilateral framework should replace the current system of bilateral treaties. Such an approach is clearly more difficult to implement at a global level than in one country. But it is also feasible, as demonstrated by the various rounds of multilateral trade negotiations under the aegis of the United Nations.

I. INTRODUCTION

The international dimensions of tax policy are of considerable importance to both industrial and developing countries. Industrial countries, however, have grappled with the issues for some time and are considerably more familiar with them than are less developed countries. Only recently have tax authorities in some developing countries begun to incorporate external factors, including foreign tax rules and multinational firms' tax planning, in policy-making. But even those who have done so find it difficult to devise appropriate policies, due to the lack of a guiding framework, and the scarcity of information, applicable to capital importers.

This report is an initial effort to address these issues. We thus review the analytical and policy questions pertinent to the taxation of international income by developing countries. Two broad themes are of principal importance to this review:

A. Incentives

This topic deals with the impacts of taxation on investment and financing decisions of a multinational company. International flows of income are subject to host country taxation on the income generated by a subsidiary operating in its jurisdiction. When the parent company receives foreign-source income from the subsidiary, the home country may assess another layer of tax, allowing host country taxes to be credited or deducted from foreign-source income as defined by the home country. There are different tax regimes, depending on the way in which a home country taxes foreign-source income. The three regimes considered in this study are:

- a. Accrual taxation of foreign-source income by the home country, which applies to branch income or subsidiaries operating in tax haven countries.

b. Taxation of remitted income from foreign sources, which generally applies to subsidiaries and will be referred to as "deferral" taxation.

c. Exemption of foreign-source income either on a partial or full basis. Usually equity income is exempt, with other sources of income taxable.

Of the three regimes, the most important is deferral taxation, which is currently used by the largest capital-exporting countries, including, the United States, Japan, and the United Kingdom. Previous economic analysis of deferral taxation has suggested that subsidiary investment decisions are independent of the home country's tax system when retentions are used (Hartman [1985]). Our analysis, however, shows that this result is incorrect. In fact, the user cost of capital for a subsidiary using retentions to finance investment depends on both host and home country taxes.¹ Only if the home country exempts foreign-source income is the user cost of capital exclusively determined by the host country's tax system.

The taxation of investment income also depends on a series of bilateral treaties. These treaties determine the rates of withholding tax and other provisions, such as "non-discrimination" between domestic and foreign-owned capital and the definition of "permanent establishment", which determines the right of the host country to tax a business. As a result of this decentralized approach to the taxation of international income (in contrast to the multilateral approach used for trade negotiations), the effects of taxation on financing and investment decisions can be quite

¹/ The cost of capital depends on the home country's tax on remitted income as long as tax provisions, such as the capital cost allowance, used by the home country's authority differs from that used by the host country. Annex I derives this result in detail.

complicated to determine. In particular, the analysis depends on how companies try to minimize taxes, given the costs incurred by relying on particular forms of finance, such as bankruptcy costs and political risks that are important to the investor. Our approach in analyzing the effects of international tax systems draws on various models, each with a different set of assumptions concerning financial choices made by firms.

B. Tax Policy Issues

The second topic deals with the level and structure of company and withholding taxes. What are the appropriate policies concerning these instruments when the capital importer attempts to maximize the benefits associated with international flows of capital? In this connection, we are also concerned with the extent to which company tax policies are constrained by tax regimes of capital exporters and other capital-importing countries.

Two aspects of the above are particularly important. First, the appropriate level of taxation set by the host country depends on the price elasticity of foreign capital. One determinant of the elasticity is the method of taxation used by the home country as discussed above. For example, if the host country's taxes are fully credited against the home country's tax, then a reduction in taxes on foreign capital by the capital-importer leads to a transfer of revenue from the host to home government's treasury without affecting investment. From the point of view of the host country, lowering taxes on foreign capital under this tax regime reduces the country's welfare.

The second aspect concerns capital mobility. With taxation, capital may flee from one country to another with a more favorable tax regime. As a result, countries that are concerned about the

"competitiveness" of their tax regimes choose tax policies that mitigate tax competition. We will examine the extent to which tax competition affects tax policy and the types of strategies that could be undertaken to reduce the impacts of tax competition. These strategies include the types of the treaties that may be chosen to eliminate tax competition.

Company tax policy cannot be viewed in isolation from other public policies. Many developing countries promote industrial growth not only through tax incentives but also a variety of other instruments such as quotas, tariffs and regulations that encourage import substitution, export promotion and local participation in management and production. Each of these policies has different implications for domestic welfare. In this paper, however, we primarily concentrate on company tax issues, although we recognized that in practice a wider set of options must be considered.

The incentive and policy issues are examined more closely in a case study involving Thailand. A fast growing economy, Thailand has been growing at about 10% a year in real terms in the late 1980s. It has also experienced a substantial, if not unparalleled, increase in foreign savings of more than 250% in 1988. Taxation of international income raises a number of interesting issues at Thailand's current stage of development, including the following:

- a. To encourage foreign investment, Thailand has used exemptions and reductions for company income tax and dividend withholding tax. These incentives are now being questioned as to whether they are too generous since other factors, such as political stability and low unit costs of production, may be sufficient to attract foreign investment.
- b. Thailand is concerned about its ability to attract foreign investment relative to other adjacent countries: Malaysia, Indonesia,

Singapore and the Philippines. Tax incentives provided by other countries include tax holidays, accelerated depreciation, and/or investment allowances. An important question faced by Thailand is whether to match the incentives provided by other competing capital-importing countries.

c. Company taxation of multinational investment is made difficult by limited information regarding the prices of internationally traded goods and services required in the determination of taxable income. To ensure adequate taxation, the Thai government must rely on unsatisfactory ad hoc methods including high import duties to discourage overinvoicing of imported inputs. These measures, however, create by-product distortions of their own and are in any case of limited effectiveness. Thus, there is a desire for new approaches to the taxation of international investment income.

d. Thailand has used import duties and business tax exemptions for capital goods of promoted firms. The proposed introduction of a value-added tax (VAT) and restructuring of import duties will erode the tax advantages now enjoyed by promoted firms, many of which are foreign-owned or controlled. Given the changes contemplated for these taxes, one of the natural questions to ask is how should the company tax be modified with respect to foreign investment.

The outline of this paper is as follows. In Section II, we describe the current tax regimes of Thailand and capital-exporting countries. In Section III, we examine how taxes influence financing and investments decisions of companies operating in Thailand, depending on the origin of capital investment. The theoretical model for this analysis is presented separately in Annex I. Section IV considers policy issues from the perspective of Thailand. In particular, we examine the treatment of

foreign companies and the withholding taxes imposed on income remitted abroad. Section V deals with the implications of national taxation on world-wide resource allocation. It also reviews the successes and limitations of the current bilateral approach to tax coordination.

II. TAX REGIMES OF THAILAND AND CAPITAL EXPORTING COUNTRIES

This section is divided into three parts: (A) Thai taxation of foreign affiliates, (B) taxation by countries of residence, and (C) tax treaties. This discussions in this section provide basic tax rates and provisions required for subsequent analysis..

A. Thai Taxation of Foreign Affiliates

Two types of taxes are paid by foreign affiliates operating in Thailand: (1) internal taxes, both direct and indirect, which also cover Thai entities in the same manners; (2) non-resident withholding taxes, levied upon repatriation of earnings out of Thailand.

1. Internal Taxes

a. Company Tax

The standard rate of company taxation is currently 35%, applicable to branches of foreign companies, locally incorporated subsidiaries as well as wholly Thai entities.² Lower tax rates are available under two major incentive programs (i) investment promotion, administered by the Board of Investment (BOI) and (ii) stock market development, supervised by the Security Exchange of Thailand (SET). The BOI grants temporary tax holidays or substantial tax reductions for projects that fulfill its specified eligibility conditions. The SET provides guidelines on ownership patterns and standards of financial reporting. Companies that are listed in the

^{2/} Companies engaged in international transport as well as petroleum exploration and production are subject to different tax treatments. In transport, an income tax of 3% of gross receipts originating in Thailand is collected. If the carrier's country of residence is a treaty partner, the rate is reduced to 1.5%. Petroleum companies are covered by a separate tax law which take granted concessions and royalties into account. At present the income tax rate is 60%.

stock exchange (SET) are entitled to a preferential tax rate of 30%, as well as additional benefits with respect to withholding taxes.

Company income is defined in a comprehensive manner. Active business income, portfolio income and realized capital gains are aggregated to arrive at the total. Interest and rental income is therefore fully taxable. Inter-company dividends are entitled to more favorable treatment³ in recognition of potential double-taxation of income flows from one company to another. In particular, half of the dividends received from a local company may be excluded. If paid by a registered (SET) company, the dividends are fully tax-exempt. Capital gains are fully taxable upon realization if they arise from the shares of other companies, but exempt when arising from the company's own shares. Immovable properties, whether or not connected to an active business, give rise to taxable capital gains upon realization.

Active business income is determined on the basis of the separate accounting approach whereby each company in a corporate group is taxed as an individual entity. Pricing among related companies is expected to follow the arm's length standard. A fair market value, or a reasonable value that might prevail among unrelated parties, may be used. At present no formula apportioning of international income has been contemplated. Apart from current operating expenses such as labor and leasing expenditures, the following deductions are allowed:

- (i) Capital allowance. Tax depreciation is based on historical cost with no inflation adjustments. Maximum rates of allowable depreciation are 20% for machineries and 5% for structures, both under

^{3/} The special treatment for inter-company dividends is not applicable when they constitute 15% or more of the company's pre-tax income.

the straight-line method. Companies are required to ensure that tax and book depreciation allowances conform with each other.⁴

(ii) Interest expenses. Actual interest costs of financing are fully deductible, except for loans extended by a foreign parent company to a local branch. This restriction does not apply, however, to loans extended by a foreign company to a controlled local subsidiary. Unlike many of its capital exporters, Thailand has no rules for curbing thin capitalization. The absence of such rules makes it possible for highly leveraged foreign affiliates to reduce taxes in Thailand and pay more taxes or use up foreign tax credit at home.

(iii) Loss carry-over. Business losses may be carried for five years with no interest and inflation adjustments.

b. Indirect Taxes

Two major indirect taxes are of particular importance:

(i) Import Duties. This tax covers most of imported articles including intermediate goods and machineries. Most items fall within the range of 5% to 50% tax rates, with an average of about 20%. The rates are therefore relatively high by the standards of industrial countries, but they are regarded by the authorities as an instrument for providing necessary protection for local industries. They also provide safeguards against overinvoicing, which would reduce the domestic income-tax base. Temporary duty exemptions or reductions are provided for selected projects by the BOI.

^{4/} The effectiveness of this provision depends on the standards used by the accounting profession to ensure such conformity. A cap on depreciation deduction is used to limit the ability of companies to avoid company taxation by setting book depreciation rates to high.

(ii) Business Tax. This is a turnover tax collected on intermediate goods and final products with no credit given. It covers both imports and domestic goods at the same rates. After years of complaints made by manufacturers and exporters, the government has decided to replace the business tax by a value added tax (VAT), to be introduced in 1990. The new VAT would be of the consumption-type, which allows a credit equal to the taxes paid on intermediate and capital goods. It would have comprehensive coverage, excluding only the financial sector, and a high threshold for registration, which leaves out small firms in all sectors.

2. Non-Resident Withholding Tax (NWT)

Upon repatriation of investment income out of the country, a non-resident withholding tax applies. This tax serves several purposes. First, it generates revenue at little economic cost if the tax is fully credited against foreign taxes. Second, it is a bargaining device in treaty negotiations. The NWT can also work against the interest of the host country, however. If, for instance, the NWT raises the host country's total tax rate (company and withholding taxes taken together) above that of a capital exporting country and if the excess foreign tax credit resulting therefrom is not applicable against other taxes levied by the home country, then the host country becomes less attractive.

The rates of NWT in Thailand are highly uneven. First, they vary across types of income, with the items deductible at the company stage such as interest expenses being taxed somewhat more heavily under the NWT. Second, the rates are reduced on all types of income for treaty partners. Third, the rates also vary according to the recipient of the income being remitted, with distinctions made between individuals and companies, between

financial institutions and other companies. Fourth, the degree of ownership in the Thai operations can also affect the NWT rates. Often, 25% control of the voting stocks in a manufacturing company qualifies the foreign investor for a lower NWT tax rate.

Normally, the host country can apply a different NWT rate to each capital-exporting country. This practice is well accepted, and not regarded as discriminatory, since company tax rates in the home countries are generally unequal. The following structure of NWT rates is currently in place:

a. Branch Profits

Branches of foreign companies are taxed in Thailand at the standard company tax rate (35%), with no interest deduction for the loans extended by the parents. The home country of the parents, however, may allow a consolidation of any losses incurred by a foreign branch with the income of the parent. When the profits are being transferred abroad, an additional remittance tax of 20% applies to "net-of-tax" profits. Because of the way the tax is computed, however, tax liability is only 16.7% of the gross-of-tax profits submitted for repatriation.⁵

b. Dividends

Ordinarily the NWT on dividends is 20%. Some treaty partners, particularly those exempting foreign-source income, however, have received preferential rates. The Netherlands, for instance, has a reduced rate of 10% if the affiliate in Thailand engages in manufacturing and if the parent holds at least 25% of the voting shares. For France, the rate is 15% when

^{5/} Suppose a company proposes to remit $x = 100$ unit, and the after-tax amount actually remitted is y , with the remittance tax $= x - y$. The law requires that $(x - y)/y = 0.2$, which implies that $y = 83.3$ and thus $x - y = 16.7$.

the same conditions are met. The NWT is exempted altogether if the dividends are distributed by a company under the tax holiday program of the BOI.

c. Capital Gains

The standard NWT is 25% on capital gains being remitted abroad. The rate, however, may be reduced to 12.5% or exempted altogether for treaty partners. Of the current 22 treaty partners, this tax is exempted in most cases and remains at 25% for 5 countries.

d. Interest

The standard NWT is 25%. The rate remains unchanged, for most treaty partners, but certain concessions are made. First, interest paid to a financial institution abroad is subject to 10% withholding tax rate. Second, interest accruing to a government agency abroad is exempt from tax.

e. Royalties, Management Fees and Technical Service Fees

The standard rate of NWT is 25%, although some deductions are allowed for the actual expenses incurred. Treaty provisions may lower the rates for some narrowly defined activities to 5% or 15%.

B. Taxation by Countries of Residence

The host country seldom has exclusive tax jurisdiction over the income earned by a foreign affiliate. The home country of the parent plays an important role. Although the source country has the first opportunity to tax, the residence country determines the ultimate tax burden. For instance, a tax collected at source may or may not be recognized at home, thus the relief of double taxation may or may not operate. An incentive granted by the source country may be reduced or cancelled by an increase in the residence country's tax. To achieve its own policy objectives, the capital-importing country cannot ignore the tax rules prevailing in the capital exporting countries.

The rules governing foreign-source income are generally complex and vary from one capital exporting country to another. It is not the objective of this section to present and discuss the detailed tax laws for each of Thailand's capital exporters. A few basic and strategic principles, however, cut across national practices and are summarized below:

1. The Source vs. Residence Principle

When the source principle is followed, only the income originating from domestic sources is taxed: foreign-source income is exempt. The residence principle, by contrast, calls for taxation of a resident's income on a global basis. When this principle is used, a mechanism is needed to relieve foreign-source income from double taxation. A common relief method is the use of foreign tax credit, which reduces the home country's tax by the amount of eligible taxes paid abroad. Another method allows foreign taxes to be deducted from the home country's taxable income.

Few countries, however, follow any one principle strictly. Hong Kong is one of the few. It applies the source rule consistently, and thus avoids double taxation of foreign-source income without resorting to any relief procedures. The United States is another example. It follows the residence rule to a large extent and uses the foreign tax credit. The United States, however, does tax non-residents on their U.S. source income, and thus departs from a strict requirement of the residence principle. Most countries specify the taxpayer's circumstances and the types of income under which each of the principles applies. In general, and apart from the case of Hong Kong, it is not possible to identify a country either with the source or the residence principle.

2. Deferral vs. Accrual Taxation

When a resident's global income is taxed at home, the foreign-source component may be taxed when received by the resident (the deferral method)

or when earned abroad (the accrual method), both with a credit given for the foreign taxes paid. This distinction is of considerable importance when the tax rates differ significantly between the host and the home countries. The deferral method is more attractive to the taxpayer when the source-country tax is relatively low. The advantage of deferral arises from the taxpayer's opportunity to make use of the deferred tax, which is essentially an interest-free loan.

Foreign-source income of subsidiaries is normally taxed on a deferral basis. Accrual taxation applies under more limited circumstances. An important case of accrual taxation relates to the income of foreign branches, an option of choice for many financial companies. A foreign branch, moreover, is often set up for the first few years of commercial operations when losses are expected. Accrual taxation of branches allows the parent company to write off the current losses abroad against local income. Another example of accrual taxation refers to the income of a controlled foreign affiliate in a tax haven. This type of income is the main concern of the United States' well known Subpart F regulations.

3. Active vs. Passive Income

Many countries draw a distinction between active and passive forms of income. Active income refers to the yields of productive activities, as with direct foreign investment. Passive income is the return to portfolio investment or property income. The distinction is not always clear-cut. At times an arbitrary line is drawn. For example, when the ownership in a foreign operating subsidiary is greater than 10% or 25%, depending on the home country's law, the income arising therefrom is considered active. When ownership falls below the specified level, the resulting income is considered as passive.

Active business income is normally given preferential treatment. Most European nations, for instance, exempt active business income arising

from foreign sources, but tax passive income on a deferral basis with a foreign tax credit. Some countries allow a foreign tax credit only with respect to active business income; the deduction method applies to other forms of income. Preferential treatment is a relative concept; in this case it refers to the comparison of tax rules across different forms of income in one country.

Thailand offers tax incentives for both active and portfolio investments. Incentives for active investment are administered by the Board of Investment and those for portfolio investment by the Security Exchange of Thailand. Each type of incentives can be cancelled by the action of the home country unless a tax sparing provision is included in the relevant tax treaty. If Thailand wishes to protect all of its incentive programs, however, different provisions must be sought for active and passive income. Consider a residence country that exempts active business income and taxes passive income with a foreign tax credit. A tax sparing provision is not necessary to protect the BOI's tax holidays, but it is very much needed to protect the SET's incentives.

Each country of residence has its own mix of the various rules discussed above. No two countries are exactly alike. An interesting case study is West Germany. Foreign-source income is taxed in West Germany according to the residence principle when the source country is not a treaty partner. When a treaty exists, active business income is tax exempt in West Germany according to the source principle, but passive income remains subject to tax. Among the passive income arising from a treaty partner, the deferral method is used when ownership is equal to or less than 10% (ordinary foreign affiliates), but accrual taxation applies when ownership exceeds 25% (controlled foreign affiliates).

4. Examples of Residence-Country Taxation

Table 1 shows the ways dividends and branch profits are taxed. As is evident, each country employs a different method, depending on the types of income, degrees of ownership and organizational forms, among others. It is therefore not possible to associate any one country with any particular rule or principle. The diversity increases as more categories of income are considered (see below).

TABLE 1 Residence Country Taxation of Dividends and Profits Arising from Thailand

Source Rule (Exemption)	Residence Rule	
	Credit with Deferral	Credit with Accrual
Hong Kong	Japan (S) Germany (IT, PI) Netherlands (IT, PI)	Japan (B) Germany (B)
France (ABI)	United Kingdom (S)	United Kingdom (B)
Germany (ABI)	France (IT, PI)	
Netherlands (ABI)	United States (S)	United States (B)
Switzerland	Taiwan (S)	Taiwan (B)
	Singapore (S)	Singapore (B)

Sources: Price Waterhouse (1986) and Individual Tax Treaties.

Notes: ABI - Active Business Income
B - Branch Profits
CFA - Controlled Foreign Affiliates
IT - International Transport
PI - Passive Income
TP - Treaty Partner
NTP - Non-Treaty Partner
S - Subsidiary

In Table 2, the tax rules governing interest income in various countries are shown. Although most countries apply the residence rule with foreign tax credit, there is considerable variation arising from the definition of tax base and the limit for tax relief. Other forms of

portfolio income as well as royalties and management fees are subject to similar tax treatment.

TABLE 2 Residence-Country Taxation of Thai-Source Interest Income

Country	Taxable Base	Relief Method	Limits on Relief	Treaty with Thailand
France	Gross	Credit	No Limit	Yes
Hong Kong	Exempt	Exempt	N.A.	No
Germany (West)	Gross	Credit	Home Tax on the Interest	Yes
Japan	Gross	Credit	Home Country Tax on the Relevant Income	Yes
Netherlands	Gross	Credit	Home Tax on the Interest	Yes
United Kingdom	Gross	Credit	Home Tax on the Interest	Yes
United States	Gross	Credit	No limit	No

Sources: Julian Alsworth, Chapter 4.

C. Tax Treaties

A net capital importer, Thailand regards tax treaties primarily as an instrument for attracting foreign investment. Through tax treaties, the Thai government conveys to potential investors a clear set of tax rules, as well as a sense of stability, since any changes in the treaty provisions can only be accomplished by a bilateral agreement conducted under established procedures. The Thai government also seeks to ensure through tax treaties that the

incentive measures it implements are not nullified or substantially weakened by actions of the home countries.

A wide range of income is entitled to tax incentives in Thailand, including active business profits as well as passive and portfolio earnings. Each type of income, however, is subject to a different method of relief from double taxation when remitted to the home country. Many countries employ the credit method as the principal tax relief procedure. (The mechanics of this method is outlined above.) Normally the credit method implies that a reduction or exemption received in Thailand gives rise to an equal tax increase in the home country. Thus, a tax holiday in Thailand could result in a transfer of revenue from Thailand to the home country. Moreover, the benefits intended for the investors would not materialize.

Thailand has attempted to prevent the transfer of revenue out of the country without giving up the incentive programs. When the home country uses the exemption method for double-taxation relief, as with most western European countries, no particular issues arise. But where the credit method is used, Thailand normally requires a tax-sparing provision to be included in the treaty. Tax sparing means that any taxes spared or exempted in Thailand are given full credit in the home country. Most of the countries that export capital to Thailand have agreed to the tax-sparing condition, with the exception of the United States, the second largest capital exporter to Thailand. The United States, which has not ratified any treaty with the tax-sparing clause since 1963, therefore does not currently have a double taxation agreement with Thailand. (See Tables 2 and 3).

Apart from the issue of tax sparing, Thailand is also concerned about potential revenue losses arising from other treaty provisions. Under the United Nation's Model of Double Taxation Convention, the concept of a taxable entity (called permanent establishment) is somewhat narrower than provided by

**TABLE 3 Thailand's Treaty Partners, Tax Relief
Methods and Tax Sparing**

Country	Principle Method of Relief for Double Taxation	Tax Sparing Clause
1. Austria	OC ¹	Yes
2. Belgium	EP ²	Yes
3. Canada ³	OC, EP	Yes
4. China	OC	Yes
5. Denmark	EP ²	No
6. Finland	OC	Yes
7. France	EP	No
8. Germany	OC, EP	No
9. India	OC	Yes
10. Indonesia	OC	Yes
11. Italy	OC	Yes
12. Japan	OC	Yes ⁴
13. Korea	OC	No
14. Malaysia	OC	Yes
15. Netherlands	EP	No
16. Norway	EP	No
17. Pakistan	OC	Yes
18. Philippines	OC	Yes
19. Poland	OC	No
20. Romania	N.A.	N.A.
21. Singapore	OC	Yes
22. Sweden	EP	No ⁵
23. United Kingdom	OC	Yes

Footnotes:

1. OC - Ordinary Credit
2. EP - Exemption with progression
3. Active business income from foreign sources is exempted in Canada.
4. Tax sparing applied only to a 1962 Incentive Act, but not the subsequent and current one. The treaty is being renegotiated.
5. Sweden applies the tax credit method only to royalty income and tax sparing is provided in the treaty.

the Thai tax code. By adopting the United Nation's definition, some of the existing taxpayers would no longer be subject to tax. Tax deductions are also more liberal under the U.N. convention than the Thai tax code. Moreover, many of the withholding taxes for treaty partners are set lower than Thailand's standard rates. For instance, the dividend NWT is reduced from 20% to 15% (or 10%) in some cases, interest from 25% to 20% and the royalty tax from 20% to 15%.

TABLE 4

Country	Treaty Status	Shares of Investment		
		1986	1987	Jan-Sep. 1988(p)
Japan	Renegotiated	44.32	69.38	48.54
United States	No	18.80	16.87	11.47
United Kingdom	Yes	3.56	6.98	3.40
West Germany	Yes	2.33	9.51	1.71
France	Yes	1.32	2.82	1.24
Netherlands	Yes	(0.84)	1.58	1.11
Italy	Yes	1.15	0.15	0.16
Canada	Yes	0.53	0.24	0.21
Australia	No	2.09	0.55	0.18
Hong Kong	No	13.69	(36.55)	10.92
Singapore	Yes	5.86	(4.68)	6.07
Malaysia	Yes	0.11	(0.20)	0.05
Philippines	Yes	(0.86)	0.01	0.01
Taiwan	No ¹	1.92	14.59	10.66
Others	..	6.03	18.75	4.32
		100.00	100.00	100.00

Source: Bank of Thailand, May 15, 1989, for the share of direct investment. Revenue Department for treaty status.

1/ Thailand does not have a separate tax treaty with Taiwan, although it does with the People's Republic of China.

These sources of potential revenue loss are weighed against the improvement in investment climate made possible by tax treaties. The Thai authorities clearly recognize the advantages of having somewhat lower tax rates as well as a stable and articulated set of rules. The balance of the various considerations appears to favor the presence of treaties. Thus, with the notable exception of the United States, Hong Kong and Taiwan, Thailand has successfully concluded treaty negotiations with all the major capital exporters. (See Table 4).

III. IMPACT OF TAXATION ON MULTINATIONALS' FINANCING AND INVESTMENT DECISIONS

Our empirical analysis in this section is based on the theoretical model developed in Annex I. This model describes a multinational firm that maximizes the value of its equity investment in a Thai subsidiary. The subsidiary finances investment with only retentions or debt⁶ so that there is a one-to-one relationship between the ratio of dividend to interest remittances and the debt-equity ratio of the subsidiary. Firms that rely more on debt finance remit more interest and less dividends. Debt may be raised in Thailand or in the home countries.

The taxes paid by subsidiaries are company and withholding taxes as surveyed in the previous section. We do not include Thai business taxes since the expected reform measures (consumption-based VAT) will eliminate the tax imposed on capital goods. Import duties on capital goods, in principle, should be included in the measure of the user cost of capital. However, since we have no country-specific data, the inclusion of a single measure of the import duty tax rate on capital goods does not allow for much variation in the user cost of capital across firms with different ownership.

6/ We do not model equity transfers made by the parent to the subsidiary although the model can be easily extended to allow for this form of financing. With transfers, the Thai withholding tax on dividends is relevant to measuring the cost of finance for the subsidiary rather than the capital gains tax, which affects the cost of finance associated with retentions. The effect of the Thai tax on dividends ultimately depends on the home country's tax on foreign-source income. If the home country exempts foreign-source income, the cost of finance for new equity transfers depends on the Thai dividend tax rather than the capital gains tax. If the "deferral" or "accrual" method is used, the cost of new equity finance does not depend on the Thai withholding tax since the tax is credited against taxes levied by the home country on foreign-source income.

The Thai company income tax provisions included in our calculations below are as follows: First, we examine foreign companies operating as non-SET firms (up to 100% ownership), facing a company tax rate of 35%, and SET firms (less than 50% ownership), facing a company tax rate of 30%. We do not include tax holiday firms owned by foreign companies.⁷ Withholding tax rates also vary since SET companies can remit dividends and capital gains abroad without paying Thai withholding taxes. Second, we assume that companies use tax depreciation allowances that conform with book depreciation. As remarked in the previous section, companies may try to use higher book depreciation figures to maximize their tax allowances even though true economic depreciation is much lower. Third, interest costs associated with either offshore or local debt are deductible from Thai corporate taxable income although interest on offshore debt is subject to Thai withholding taxes.

The capital-exporting countries selected for this study provided the bulk of direct foreign investment for Thailand, as shown in Table 4. Some of the countries, such as Hong Kong, fully exempt foreign-source income. Others exempt remitted dividends and retained profits of subsidiaries in Thailand (Netherlands, Switzerland, France and, for qualifying ownership of 10%, West Germany). Moreover, several countries tax remitted earnings of subsidiaries and provide a tax credit for the underlying corporate income and withholding taxes (Japan, Singapore, Taiwan, the United Kingdom and the United States). Almost all countries

⁷ Tax holidays have been analyzed by Mintz (1989) for five countries including Thailand. The model used in the analysis is applicable to domestic firms or foreign affiliates where the home countries exempt foreign-source income. The regimes of deferral and accrual taxation have not been incorporated.

tax branch profits on an accrual basis, except for the Netherlands, Switzerland, and Hong Kong.

In our analysis, we examine several cases of home country taxation. Those countries that exempt foreign-source equity income of subsidiaries and branches are assumed to be "exempt" cases only. Countries that exempt equity income of subsidiaries but not branches are assumed to be either "exempt" or "accrual" taxation cases only. Countries that tax remitted earnings of the subsidiary and accrual earnings of branches are assumed to be either "exempt", "deferral" or "accrual" cases. The "exempt" case also applies to companies resident in countries that tax foreign-source income on a deferral basis if these companies have excess foreign tax credits that cannot be used against other tax liabilities.⁸

Table 5 provides the data used later to measure the user cost of capital and marginal effective tax rate, which is explained in more detail below.

The model presented in Annex I also considers the impact of interest rates and inflation, which vary across countries, on the investment and financing costs of multinationals of different origins. The determination of

8/ As discussed in Appendix I, the taxation of foreign-source income on a deferral basis does not apply if the parent corporation does not pay any taxes to the home country on all forms of remitted earnings. In this case, the firm, with excess foreign tax credits, is not able to use them. Hines and Hubbard (1988) found that a number of U.S. corporations in 1984 were in an excess foreign tax credit position although they had no evidence to suggest that such a position would be permanent. Moreover, from a tax planning point of view, a parent corporation with excess foreign tax credits would want to restructure its relationship with the subsidiary so that the subsidiary pays less company tax to Thailand and the parent pays more corporate tax to the home country so foreign tax credits can be used up.

Table 5 Values of Parameters Used to Measure User Costs of Capital and Effective Tax Rates for Companies Operating in Thailand, Domestic and Foreign Ownership

Country	Corporate Tax Rate		(D	Capital Cost Allowance Rate Balance Equivalent (%)	Accrual-Equivalent Capital Gains Tax Rate on Parent (%)	Dividend Payout Ratio (%)	Subsidiary Debt-Asset Ratio (%)	Interest Rate (%)	Inflation ³ Rate (%)
	Domestic Income (%)	Foreign Income (%)							
Thailand	30, 35	35		10	15			12.5	3.9
Hong Kong	18	0		10	8	53.9	34.0	10.0	7.4
Taiwan	25	25		10	8	47.8	57.4	10.5	4.5
United States	38	38		13.6	13	48.0	42.5	9.3	4.0
United Kingdom	35	25		15.5	12	43.5	43.1	10.3	4.9
West Germany	56	0, 50, 56 ¹		10	6	70.5	95.5	8.3	1.2
Japan	58	53 ²		10	19	39.6	66.1	4.9	0.7
Singapore	33	33		12.6	4	43.5	28.2	6.0	1.5
Netherlands	42	0		10	4	36.8	38.8	7.8	0.7
Switzerland	30	30		18.6	4	48.0	50.7	5.2	1.9
France	42	0		10	4	48.0	50.7	9.5	2.7

Source: Somchai Richupan and International Bureau of Fiscal Documentation.

¹10% applies to dividends for qualifying ownership in subsidiary, 50% for branches, 56% otherwise.

²Corporate income plus enterprise tax.

³Based on 1988 consumer price index.

the exchange rate between Thailand and other countries is very important to the modelling of the effect of taxes on the multinational's decisions. The model uses the "purchasing power parity" as a determination of exchange rates. That is, the value of home country currency relative to the Thai currency, the Baht, is determined by ratio of the home country consumer price index to the Thai consumer price index. Several studies have suggested that currency valuation, at least in the short term, is not accurately predicted by "purchasing power parity". However, the model examined in the Annex is based on long term considerations since investment is inherently a long term decision. "Purchasing-power parity" is an appropriate characterization of currency valuation for this purpose.

This section is divided into two parts. In part (A), we examine the impact of taxes on the financing decisions of multinationals. This analysis will depend on the type of model assumed for the determination of financial equilibrium, a point that we discuss in more detail below. In part (B), we examine the impact of taxes on the multinational's investment decisions. We first measure the user cost of capital which is the tax-adjusted costs of financing and depreciation faced by the firm when choosing its capital stock. We then measure the effective tax which is the difference between the gross-of-tax marginal rate of return on capital (user cost of capital net of depreciation) and the net-of-tax marginal rate of return earned by owners of capital. The marginal effective tax rate is then measured as the effective tax divided by the gross-of-tax marginal rate of return on capital.⁹ Since

9/ There are alternative measures such as the effective tax divided by the net-of-tax rate of return on capital. We choose the former since it is comparable with the original studies such as King and Fullerton (1984) and Boadway, Bruce and Mintz (1984).

we will be allowing for three types of financial arbitrage, as explained more fully below, we measure the user cost of capital and effective tax rate for each case.

A. Financing Decisions

A crucial issue in discussing the impact of taxation on multinational decisions is that of financial arbitrage. Differences in tax rates across countries and sources of income make it very difficult to fully model a financial equilibrium whereby savers earn the same net-of-tax rates of returns on assets and firms face the same gross-of-tax costs on all sources of finance. In a multinational context, a financial equilibrium would need to account for the following differences:

(i) Treaty Shopping. As a result of differences among countries with respect to withholding and corporate tax provisions, multinationals minimize taxes by routing income through countries with the lowest levels of taxation on particular sources of income. An important example of this is the Netherlands which negotiates the lowest withholding tax rate on income with host countries, including Thailand. The Netherlands allows interest and dividend remittances to flow tax-free through a Dutch subsidiary. If the multinational does not want to repatriate the income back to the resident country, it can distribute the funds as interest to a Swiss branch of the Dutch subsidiary. The Swiss branch is taxed at a minimal rate.¹⁰ In this manner, a foreign company can defer taxes owing to the home country and, at the same time, repatriate funds out of Thailand to a desired destination. Arbitrage under "treaty shopping" is particularly

^{10/} Some countries, like the United States, might tax this passive income earned by the Dutch subsidiary on an accrual basis. However, if the U.S. multinational structures the transaction carefully the income may not trigger a U.S. tax.

difficult to model in detail since there are many tax planning opportunities available to multinational companies.

(ii) Restructuring Measures. A multinational can minimize taxes by restructuring the financing of its subsidiary. For example, if the parent has excess foreign tax credits, it can restructure the subsidiary's liabilities in favor of debt since interest is tax deductible. This lowers the tax paid to the host country, and thereby reduces the excess foreign tax credits. If the subsidiary's interest also accrues to the parent, the parent will generate more home country tax liability on interest income (to the extent that the home country's corporate tax on income is more than the withholding tax imposed on remittances by the host country) and this liability can be used to absorb more of the excess foreign tax credits. The same consideration applies to technical and management assistance fees, royalties, and lease payments, all of which are deductible expenses for calculating the host country's corporate tax.

(iii) Timing Differences. A multinational can reduce tax liabilities over time by manipulating the payment of corporate taxes to the host and home governments. The "rhythm" method is a term coined for strategies used by companies to take advantage of the "deferral" method used by many countries to tax foreign-source income. A company can try to avoid the payment of taxes to the home country by reinvesting profits in the subsidiary. No tax payable to the home country is triggered since the home country taxes only remitted income. If the multinational wishes to repatriate earnings, either for financing or tax¹¹ reasons, it then generates the highest possible tax in the host country in the year of

^{11/} For example, if the parent wishes to generate excess foreign tax credits on dividend remittances to eliminate home country taxes owing on other remitted income, repatriation will occur just for this reason alone.

repatriation to minimize taxes paid to the home country. This can be achieved by having the subsidiary sell off assets (and generate taxes paid to the host country) or, if some deductions under the host country's tax law are discretionary, choose not to use all company tax writeoffs (delaying them for future years when repatriation is not planned). Host country taxes are thereby increased in years of repatriation and reduced in years of profit reinvestment. Recent U.S. tax reforms, requiring the pooling of earnings over time to calculate the foreign tax credit, specifically aimed at the use of the "rhythm" method, although the incentive to defer taxes by reinvesting profits still remains.

These three methods used to minimize taxes are difficult to capture in a single model. The model represented in Annex I assists in analyzing "restructuring" and, to a limited extent, "treaty shopping". There is no attempt to model the "rhythm" method nor all the complexities that would arise from "treaty shopping".

In this section, we show what potential biases in financing are induced by the tax system. For this purpose, we calculate the cost of debt finance raised locally in Thailand, the opportunity cost of equity invested in the subsidiary, and the cost of debt financed raised by the multinational at home.¹²

Results

In Table 6, we present the real costs of finance for each home country and tax regime (exemption, deferral and accrual). With these numbers, we can observe the effects of international taxes on the incentive

^{12/} We do not attempt to model the U.S. tax reform rules that limit the use of interest deductions by the parent when financing investments in the subsidiary. We assume that any debt finance raised in the U.S. is deductible from domestic-source income.

Table 6 Real Cost of Thai Debt, Home Country Equity and Debt

Country	Debt Issued in Thailand		Opportunity Cost of Equity Finance (Parent)		Cost of Debt Finance Issued at Home
	SET	Non-SET	SET	Non-SET	
Thailand	4.85	4.23	6.73	8.17	..
Hong Kong - Exemption	4.85	4.23	0.84		0.80
Taiwan - Exemption	4.85	4.23	4.15		
- Deferral	4.94	4.05	5.02	4.35	4.06
- Accrual		5.48		4.90	
United States - Exemption	4.85	4.23	3.66		
- Deferral	4.98	4.00	4.43	4.83	2.63
- Accrual		3.85		4.80	
United Kingdom - Exemption	4.85	4.23	3.58		2.71
- Deferral	3.59	2.36	5.36	5.86	
- Accrual		4.32		4.74	
West Germany - Exemption	4.85	4.23	6.66		
- Accrual		1.60	5.07		2.69
Japan - Exemption	4.85	4.23	2.34		
- Deferral	4.68	3.43	2.56	4.09	1.84
- Accrual		1.35		4.28	
Singapore - Exemption	4.85	4.23	3.44		
- Deferral	4.43	3.32	3.75	4.12	2.69
- Accrual		4.48		3.65	
Netherlands - Exemption	4.85	4.23	5.72		3.83
Switzerland - Exemption	4.85	4.23	2.38		1.74
France - Exemption	4.85	4.23	5.20		6.73
- Accrual		3.35	6.5		

to issue finance in different countries. In each case, we consider the possibilities of "treaty shopping", "restructuring" and "timing differences".

The Exemption Case: From the perspective of "treaty shopping", the least-cost source of equity and debt finance is in Hong Kong. There are several reasons for this but the primary one is that inflation rates, relative to interest rates, are highest in Hong Kong and Switzerland compared to other countries. The costs of debt finance in Hong Kong and Switzerland are lowest even though these countries tax company income at a relatively low rate. Thailand has rather high costs of finance primarily as a result of a restrictive monetary policy, which implies low inflation, high nominal interest rates and high real interest rates.

With respect to the incentive to restructure financing, we note that the real cost of debt finance issued in Thailand is generally higher than the real cost of equity in the exemption case. This is the case despite the tax deductibility of interest from Thai corporate taxes that lowers the cost of Thai debt finance. Only in the cases of French, West German and Thai ownership is the cost of equity finance higher than debt finance. The reason is that most countries have lower real interest rates compared to Thailand.

Similarly, the cost of debt finance raised in the home country is also higher than debt finance in Thailand for the exemption regime. This reflects not only the differences in real interest rates but also a higher company tax rate in most other countries compared to Thailand, with the exceptions of Hong Kong and Taiwan. Since interest writeoffs are more valuable in other countries, there is an incentive to issue debt in those countries. Note that Taiwan has a lower company tax rate than Thailand but its interest rate, adjusted for inflation, is lower than in Thailand.

As stressed above these results are contingent on anticipated rates of inflation. If real interest rates are the same across countries,

multinational companies from exemption countries like Hong Kong and Netherlands would prefer most to issue debt in Thailand and reduce corporate tax payments to the Thai government. The company may then remit income in the form of interest from Thailand that would only be subject to the Thai withholding tax rate, generally lower than the Thai company tax rate. As a result, a multinational company from an exemption country would tend to remit earnings in the form of deductible payments, rather than dividend income. Such is the case of Hong Kong as shown in Table 7 whereby almost 90% of income repatriated from Thailand is in the form of tax-deductible interest or fee payments.

Deferral Taxation. The countries that use deferral taxation are Taiwan, United States, United Kingdom, Japan, and Singapore. Compared to the exemption case, the costs of equity finance are generally higher (lower) for firms in excess (deficient) tax credit position. The reason for this result is the following. When the subsidiary is in a deficient tax credit position with respect to its dividends, retaining dividends in Thailand saves the parent company from paying taxes to the home country on remitted dividends. On the other hand, when the subsidiary is in an excess foreign tax credit position, retained earnings used to finance investment reduces the value of excess foreign tax credits that can be used to offset taxes on other sources of income.

Similarly, the cost under deferral can be higher or lower than that under exemption depending on whether the subsidiary is in an excess or deficient tax credit position. When the firm is in an excess foreign tax credit position, the cost of debt finance tends to be higher under deferral since interest deductions not only reduce taxes paid to Thailand, but reduce excess foreign tax credits and increase the amount of taxes paid on remitted

Table 7

Remittances of Profits, Dividends, Interest and Other Fees
from Thailand to Home Country, 1983-87

	Profits	Dividends	Interest	Fees	Total
United States (% of Total)	1873.7 (12.1)	5374.0 (34.8)	5850.3 (37.8)	2360.4 (15.3)	15458.4 (100%)
Japan (% of Total)	436.9 (5.2)	1805.0 (21.4)	2144.4 (25.4)	4063.4 (48.0)	8449.7 (100%)
United Kingdom (% of Total)	562.2 (11.9)	439.2 (9.4)	2995.6 (63.6)	707.7 (15.1)	4704.7 (100%)
West Germany (% of Total)	25.6 (1.6)	240.9 (14.9)	904.7 (55.8)	449.6 (27.7)	1620.8 (100%)
Hong Kong (% of Total)	246.1 (1.9)	1198.1 (9.2)	11077.1 (85.3)	464.8 (3.6)	12986.1 (100%)
France (% of Total)	..	13.8 (6.7)	190.8 (93.3)	..	204.6 (100%)
Singapore (% of Total)	36.5 (0.4)	155.9 (1.5)	10023.3 (98.1)	..	10215.7 (100%)

Source: Bank of Thailand.

earnings received by the parent. However, if the firm is in a deficient tax credit position, (i.e. Japan), debt financing is less costly under deferral since interest deductions save taxes owing to both the host country as well as the home country to the extent that profits are remitted.

With respect to "treaty shopping" and deferral taxation, multinational companies would still prefer using Hong Kong, and to a lesser extent, Switzerland as sources of financial capital. In general, capital exporter countries using deferral taxation are less favorable locations for multinationals.

As for the "restructuring" of finance, deferral taxation generally increases the incentive for multinational subsidiaries to issue debt in Thailand compared to using equity. Equity finance is less favorable since the tax on remitted earnings is negative. When this occurs paying out dividends at the margin increases foreign tax credits and reduces taxes paid on other sources of income (i.e. the multinational subsidiary is in an excess foreign tax credit position). However, the cost of debt finance raised in the home country remains the most preferable source of finance, given the relatively high real rates of interest in Thailand.

Accrual Taxation. With accrual taxation, the home country taxes both the remitted and reinvested profits of the multinationals operating in Thailand. Accrual taxation applies to only branches of multinationals while deferral taxation applies only to subsidiaries. Thus, a comparison of costs of finance for accrual and deferral can suggest what incentives might exist to form branches rather than subsidiaries.

For most countries, the cost of equity finance is highest in the presence of accrual taxation compared to either the exemption or deferral taxation cases. Compared to the exemption case, the higher tax on an accrual

basis reflects the additional capital gains tax on the equity invested in branches (this is only taxed by the home country). As for debt finance issued in Thailand, the interest is deducted from the home country rather than Thai company taxes. This implies that the cost of debt finance issued in Thailand is generally lower for branches compared to the exemption case since most capital exporters impose higher company tax rates than Thailand.

As regards "treaty shopping", Hong Kong remains the favorite source of equity and debt finance, although debt issued in Thailand by West German and Japanese branches is quite low in cost. The latter result reflects the high company tax rates in these countries at which interest costs in Thailand are effectively deductible from company taxes. Thus, branches that are primarily debt financed would find Japan and West Germany to be good locations for residence to take advantage of high company tax rates in those countries. Note that the cost of issuing debt in Thailand is very high for Taiwanese branches since the Taiwanese company tax rate is much lower than the Thai tax rate.

As for "restructuring", the taxation of accrual income discourages the use of retentions by branches operating in Thailand and encourages the use of debt financing relative to the exemption and deferral cases except for Taiwanese companies and, for the case of deferral only, U.K. companies. The latter can be explained by the substantial subsidy afforded to debt financing resulting from the excess foreign tax credit position of the multinational. (More debt finance reduces taxes paid to the home country on remitted earnings.)

As to whether branches are more preferable than subsidiaries, the analysis is less clear since accrual taxation lowers the cost of debt finance and increases the cost of equity finance for a number of countries. If the debt/equity ratio of the multinational firm operating in Thailand is

sufficiently high, branch operations may be more desirable than subsidiary operations. Thus, for tax reasons alone, leveraged firms such as financial intermediaries may prefer operating as a branch in Thailand. To better assess this issue, however, one has to examine effective tax rates on capital.

B. Investment Decisions

In this section, we examine the impact of taxation on investment in long-lived assets held by multinationals operating in Thailand. To assess the tax impact, we measure the user cost of capital and the marginal effective tax rate on capital as defined earlier. The formulas used for the estimation of these variables are derived in Annex I.

An important, and difficult, issue in measuring the user cost of capital is the determination of financing costs faced by multinational companies. Since the user cost of capital in part depends on the source of finance, each taxed at a different rate, a model must be developed to show how the real cost of finance is determined. Below, we consider three types of financial equilibrium:

1. "Trade-off" Model. The cost of finance depends not only on taxes but also on transaction costs. Debt is a favored source of finance from a tax point of view since interest is deductible from the company taxable income. However, debt finance entails other costs, such as higher bankruptcy and agency costs. (See Bartholdy, Fisher and Mintz (1987) for a lengthy description of these issues.) In an international framework that we are considering, there is a choice between debt and equity used by the subsidiary as well as the parent company.

In the "trade-off" model, we assume that each source of finance entails its own tax or transaction costs. The multinational chooses a financial policy that minimizes tax and transaction costs, the choice being

independent of the capital stock of the firm. The cost of finance used by the multinational is a weighted average of individual sources of finance (equity, debt issued in Thailand and debt issued in the home country). The weights used are those observed for the subsidiary and the parent.

2. "Tax Planning" Model. If there are no transaction costs involved in financing, the object of the multinational is to minimize the cost of finance. With this model, the multinational uses the cheapest source of finance to acquire assets, with financing raised either in Thailand or in the home country. (We do not allow for treaty shopping). With this model, the firm is constrained from selling assets short so that arbitrage is not unlimited.

3. "Pecking Order" Model. As suggested by Myers (1985), firms may prefer to finance investment with retentions first and then use external financing if retentions are not adequate. The "pecking order" motive for financing arises from models in which external finance must be obtained from outside investors who believe only poor quality firms are seeking funds from the market. The argument for the use of the "pecking order" model for multinational subsidiaries is more difficult to apply since the parent has knowledge about the subsidiary or branch. However, retentions may still be desirable if they are the cheapest source of finance for transaction cost reasons. In our model below, retentions are assumed adequate to finance the investment undertaken by the multinational subsidiary or branch.

The above three models for financial equilibrium are easily applied in each of the three tax regimes. We point out, however, that "deferral" taxation leads to a "tax minimizing" model without imposing constraints on short sales (unlike other potential models). In equilibrium, debt financing by the subsidiary lowers taxes paid to the host country but increases taxes paid to the home country on remitted dividends and other earnings. Unlike

the estimates discussed in Table 7 above, we assume that the cost of finance on Thai debt is equal to that on equity when evaluating the cost of capital for countries that use deferral taxation. This also applies to the "trade off" model calculations.

There are two important aspects of financial policy that are ignored in our calculations. First, we assume that companies operating in Thailand are domestic- or foreign-owned with marginal sources of finance coming from the primary owners. Yet, in Thailand, many companies are owned by both Thai and foreign owners. (This may be important for foreign firms to enjoy certain benefits such as owning land and bringing in expatriates as managers.) Since tax rates on the foreign parent company, particularly in the deferral and accrual taxation cases, are different than that for domestic owners, the measure of the cost of finance would differ for the two owners.

Second, our calculations are based on actual interest rates observed for host and home country. Financial arbitrage across countries is assumed to occur but not due to non-financial companies eliminating interest rate differentials as discussed in the previous section.

In Table 8, we present user costs of capital estimated for companies operating in Thailand. The user cost of capital is based on an exponential economic depreciation rate of 10%, averaged over machinery and building assets. The debt-asset ratio is calculated for companies of different ownership on the basis of financial statements as reported in Table 5. (Companies with negative values of equity are excluded from the sample.) It is assumed that parent companies finance their capital with 30% debt in the home country. Thus, we have not tried to calculate a country-specific debt-asset ratio for each parent.

The calculations presented in Table 8 allow for variations in the user cost of capital depending on the determination of financial policy under

various models and different tax regimes. Our preferred calculations are those associated with the "trade-off" model in which a weighted average of costs on debt raised in Thailand and equity or debt raised in the home country is taken as the firm's discount rate. (In the deferral case, however, the Thai real cost of debt finance is assumed to be equal to the multinational's weighted average cost of debt and equity finance.) For the "tax planning" model, our calculations for the deferral case assume the same value for tax on remitted earnings imposed by the home country. In principle, the tax rate on remitted earnings would be higher if the parent relied primarily on home country debt rather than Thai debt. With the "pecking order" model, it is assumed that the multinational parent only uses equity to finance capital abroad. Thai debt is used by the subsidiary in the case of deferral taxation only. (The cost of Thai debt is assumed to be equal to the cost of equity finance for the parent so that it does not enter the calculations directly.) Under the "pecking order" model, no home country debt is used in any tax regimes and no Thai debt finance is included except for deferral taxation which requires the cost of Thai debt and retentions to be equal. Other data used to estimate the user costs of capital is provided in Table 5.

In Table 9, we present marginal effective tax rates on capital. These rates are calculated by measuring the difference between gross-of-tax and net-of-tax marginal rate of return. The marginal rate of return on capital is calculated by taking the user cost of capital and subtracting off the rate of economic depreciation. The net-of-tax rate of return is the marginal rate of return on capital received by the owners. This would be the rate of return, adjusted for inflation which, under purchasing power parity

Table 8 User Cost of Capital for Foreign Firms Investing in Thailand by Type of Ownership and Home Country Tax Regime for Various Financial Models - 1989

Country	Tax Regime	Trade-off Model		Tax Planning		Pecking-Order	
		SET	Non-SET	SET	Non-SET	SET	Non-SET
Thailand	Exemption	19.7	21.3	17.8	17.7	20.4	23.5
Hong Kong	Exemption	12.6	13.3	12.3	12.6	12.3	13.7
Taiwan	Exemption	16.8	17.4	15.8	16.8	17.9	18.7
	Deferral	16.4	18.1	16.5	17.2	17.6	18.2
	Accrual	16.0	17.0	15.3	16.2	16.3	17.3
United States	Exemption	16.4	17.5	13.6	15.3	16.2	18.5
	Deferral	15.3	17.5	14.5	15.2	17.6	18.5
	Accrual	15.8	17.4	13.9	15.2	16.7	18.4
United Kingdom	Exemption	15.8	16.9	13.6	15.4	16.1	18.4
	Deferral	15.3	17.5	14.7	15.4	17.2	18.0
	Accrual	14.5	15.9	13.0	14.1	15.2	16.6
West Germany	Exemption	21.4	21.5	14.5	15.4	18.9	20.4
	Accrual	20.1	20.8	15.8	16.2	22.0	22.8
Japan	Exemption	19.8	20.5	13.0	14.2	15.7	17.7
	Deferral	15.0	17.0	13.5	14.2	17.3	18.3
	Accrual	16.4	18.1	13.5	14.5	17.7	19.6
Singapore	Exemption	17.1	17.7	14.6	15.4	15.9	16.8
	Deferral	15.3	16.2	14.6	15.1	15.9	16.4
	Accrual	14.9	15.2	14.0	14.3	15.3	15.6
Netherlands	Exemption	19.8	20.6	16.4	17.3	19.0	20.3
Switzerland	Exemption	17.4	17.8	13.6	14.2	14.4	15.2
France	Exemption	18.4	18.9	15.0	15.9	18.2	19.5
	Accrual	18.8	19.3	16.1	16.5	19.9	20.5

¹User cost of capital is estimated as:

$$F' = (\delta + r)(1-A)/(1-\bar{u})$$

\bar{u} = Combined host and home country company tax rate, A = present value of capital cost allowances.

δ = Economic depreciation rate, r = real cost of finance.

leads to two different cases. The first is the case of net-of corporate tax rates of return on assets differing across countries which may arise from impediments to arbitrage or taxes at the intermediary or individual level that differ for capital gains on currency appreciation and regular income. The second is the case of net-of-tax real rates of return being the same across assets which would arise if there are no impediments to arbitrage and there is equal taxation of income and capital gains on currency appreciation received by the lender to the firm. The second set of calculations were made by assuming that all countries have inflation rates such that the real interest rate is equivalent to Thailand's which is otherwise higher in most cases. These calculations are only done for the trade-off model.

Based on the calculations presented in Tables 8 and 9, the following conclusions are reached.

1. Taxation of Thai Firms Relative to Foreign Companies. Based on Table 8, domestically-owned companies in Thailand face a relatively high user cost of capital; only those of French and West German companies are higher. The user cost of capital in Thailand reflects the high real interest rates faced by companies raising capital domestically. The user cost of capital is lowest for Hong Kong companies, due mainly to the low cost of finance in Hong Kong.

Calculations of effective tax rates (Table 9) suggest that Thai domestic firms tend to be taxed at a lower rate than most foreign companies under both cases of "equal real interest rate" and "actual real interest rate". The exception to this is the case of West Germany (exemption only), and Japan (deferral with actual real interest rate.) Hong Kong's effective tax rates are quite high primarily as a result of the low gross-of-tax rates of return on capital used in computing effective tax rates.

**Table 9 Marginal Effective Tax Rate for Foreign Firms
Investing in Thailand by Type of Ownership and
Home-Country Tax Regime - 1989
(Percentages)**

Country	Net Foreign Tax Credit Position	Trade-off Model			
		Equal Real Interest Rate		Actual Real Interest Rate	
		SET	Non-SET	SET	Non-SET
Thailand	Excess	31.0	40.7	31.0	40.7
Japan	Excess	35.0	41.1	36.0	40.2
	Deficient	25.4	46.1	-18.3	15.2
United States	Excess	42.7	52.1	45.6	54.1
	Deficient	46.1	59.7	13.5	38.3
Taiwan	Excess	44.8	49.9	46.2	50.7
	Deficient	51.9	60.9	42.9	54.6
United Kingdom	Excess	45.2	54.3	48.8	57.2
	Deficient	52.0	64.2	41.3	58.4
West Germany	Excess	34.8	35.7	34.8	35.7
	Deficient	38.8	42.9	26.7	31.6
France	Excess	39.4	43.4	40.1	43.8
Netherlands	Excess	37.9	42.6	38.4	42.8
Singapore	Excess	41.0	46.4	43.8	48.5
	Deficient	38.5	46.3	25.1	35.4

These results assume accurate reporting of income. If Thai-owned companies were to report low revenues or high costs to avoid company taxes, the user cost of capital as estimated in Table 8 would have to be adjusted downward. In fact, accounting data suggest that Thai-owned companies tend to pay proportionately less taxes than foreign companies. The user cost of capital for Thai firms may therefore be over-estimated.

2. Exemption versus Deferral Taxation. The user cost of capital for a company of a specific country is often lower under deferral taxation than under exemption (Table 8). Much of this is due to the advantages afforded to foreign-owned companies to finance investment in Thailand at low real rates of interest in their own country. Under the deferral case, the benefit of a lower cost of finance is greater for the multinational than under the exemption case especially when a significant amount of dividends are remitted to the parent which increases the value of capital cost allowance deductions. Thus, much of the advantages for foreign companies is their access to a lower cost of funds compared to Thai companies.

To gain a better understanding of the effect of deferral, we use the effective tax calculations in Table 9. For the "trade-off" model, when real interest rates are assumed to be the same, tax rates on a deferral basis are generally higher than those on an exemption basis. This would be expected since the effective statutory tax rate, which includes the impact of capital income on the repatriation tax rate imposed by the home country, would be higher than the Thai statutory tax rate. Moreover, the capital cost allowances are partly based on the home country tax writeoffs for foreign investments of multinationals. In general, home countries tend to provide less liberal writeoffs so that capital cost allowances are less valuable on a present value basis to the extent that dividends are remitted.

These results differ to some degree when actual real interest rates are used. In the case of Japan, Singapore and the United States, deferral effective tax rates are now lower than those in the exemption case. The reason is that these countries have higher inflation rates and lower real interest rates than Thailand. Thus, the cost of finance in the home country is lower. This makes capital cost allowances more valuable since the discount rate for computing the present value of capital cost allowance writeoff is lower. In addition, the tax subsidy associated with debt finance raised in the home country is more valuable to the parent especially if inflation rates are high relative to the nominal interest rate in the home country. Both of these factors are particularly important for Japanese companies that face low real interest rates and tend to be more highly levered.

3. Accrual Taxation. For each country we find that the effective tax rate for the accrual case (under the "trade-off" model) is higher than the exemption case when real interest rates are the same. The accrual effective tax rate is higher than the deferral effective tax rate (when real interest rates are the same) generally, except Taiwan, the United Kingdom, and Singapore. When real interest rates differ, the accrual taxation leads to lower effective tax rates on capital for Japanese firms as well, reflecting the tax subsidy on debt that favors Japanese companies when they remit income to Japan.

The above is a surprising and unconventional result. The relatively low cost of capital in the accrual case can arise for two reasons. First, under accrual taxation, the effective statutory tax rates applied to interest and depreciation deductions for tax purposes are based on the home country rather than Thai company tax rates. When the rate of company tax is higher

in the home country, these tax deductions are more valuable. Second, capital cost allowances given by the home country for multinational foreign investments are sometimes higher than that provided by the host country (i.e: the United Kingdom). As a result, the effective tax rate may be lower under accrual taxation compared to the other tax regimes.

4. Financial Models. In general, the "tax planning" model yields the lowest user costs of capital but not the lowest effective tax rates. The reasons are the differences in the rates of return implied by different models. As discussed in the previous section, the least cost source of finance is debt issued at home. This is due in part to higher statutory tax rates and lower real interest rates in home countries compared to Thailand. With the "tax planning" model, home country debt has the minimum cost, and, surprisingly, higher effective tax rates.

5. SET versus Non-SET Companies. Companies that are listed on the Stock Exchange of Thailand (SET) are taxed at a lower rate. Withholding taxes imposed by Thailand on dividends and capital gains are also lower for these companies. It is not obvious, however, that a lower statutory tax rate leads to a lower user cost of capital. As is well known, if tax depreciation and interest writeoffs are generous enough, a lower statutory tax rate may penalize rather than subsidize investment. In an international context, there is another dimension. A lower statutory tax rate may reduce tax payments in Thailand, and if the firm is in a deficient foreign tax credit position, may increase tax payments to home countries using deferral taxation. Except for the cases of Japan and United States, home-country taxes on remitted dividends of SET companies are negative so a lower statutory company or withholding tax rate imposed by Thailand does not necessarily benefit the foreign company. However, the calculations do suggest that effective tax rates are lower for SET firms in general.

IV. POLICY OPTIONS FROM THE PERSPECTIVE OF THAILAND

In the previous section, we found that effective tax rates on foreign capital vary considerably by country of ownership and type of tax regime. Using this analysis, we now address policy issues related to the taxation of foreign capital from the perspective of the capital importing country. We first review the objectives of company tax policies, the constraints surrounding policy measures and then consider some applications to the case of Thailand. In an international context, the determination of company tax policy is quite difficult given the complexities of tax systems and the strategic behavior of the parties concerned.

A. Economic Objectives of Tax Policy

To discuss policy options, it is useful to review the objectives that countries might pursue in taxing capital at the company level. These objectives are the following:

1. Raising Revenue. The main rationale for taxation is to raise revenue. Two types of taxes can be distinguished with respect to this role. One type of tax is the "user charge" which is a payment made by either individuals or companies for the benefit they receive from the public sector. User charges on companies, such as property taxes, are assessed as payments for public expenditures on infrastructure. They can also include taxes on economic rents earned by natural resource companies that exploit government-owned property.

Most tax revenue raised by governments is a "general levy" assessed on income, including personal and company income, payroll and withholding taxes, or consumption, as with the VAT and excise taxes. Although governments tend to rely on all of these taxes, it is conceivable that they could rely on taxes imposed on individuals, such as personal income and

withholding taxes, without relying on taxes imposed on firms such as the company income tax. So what is the role of the company income tax?

As discussed by Mintz and Seade (1989), a company income tax serves two roles. The first role is to "withhold" taxes on income, primarily retentions or accrued capital gains, which is difficult to tax at the individual level. The company tax ensures that individuals cannot avoid the individual income tax by reinvesting income rather than withdrawing it as dividends or other forms of income that are fully taxed.

The second role of company income tax is important in the international context. If a country imports capital, especially foreign-controlled capital (direct investment), the company tax acts as a withholding tax on the income accruing to foreigners. From the perspective of a capital importer like Thailand, taxation of income accruing to foreigners distorts little foreign investment if the tax falls on rents accruing to foreigners or, under foreign tax crediting arrangements, on foreign governments. This makes the company income tax, as well as non-resident withholding taxes, an efficient source of revenue as economic costs for the capital importing country are low.

As shown in Section III, the latter role of company income taxes and withholding taxes on non-resident depends critically on the tax regime of the home country. If the exemption tax system is used, the company income tax falls on investors, not on governments. The company tax lowers the return on capital so that foreign capital flows are distorted, except when foreign investors earn "rents" (i.e. the difference between revenues and economic costs of using capital and labor).

Under the accrual tax system, which primarily applies to branches of foreign companies, another result is obtained. Since the host country's company and withholding taxes are fully credited against foreign taxes, the

host country's company tax has no distortionary effect on investment. The tax serves as a revenue-sharing device in the sense that each unit of company tax raised in the host country reduces a corresponding amount of revenue accruing to the home country.

Under the "deferral" tax system, the host country's company income tax withholds the subsidiary's income accruing to both investors and governments. To the extent that the underlying company tax is associated with remitted dividends and credited against foreign taxes under the deferral system, the home country loses revenue in favor of the host government. On the other hand, the host's company tax also falls on foreign investors and may discourage capital inflows. In part this depends on the degree to which investments are financed by the retentions of the subsidiary. It also depends on how the host country taxes affect home country taxes on remitted income.

As the analysis of the previous section and Annex I suggests, the company tax can also encourage foreign capital investment under the deferral regime. If a subsidiary is in an excess foreign tax credit position on dividends, the credits can be used to reduce home country taxes imposed on other forms of incomes. In this case, deferral taxation results in the home country tax subsidizing investments by subsidiaries in the host country.

2. Allocative Efficiency. There are two efficiency issues relevant to the taxation of foreign capital:

First, company taxes affect the allocation of capital by taxing assets unevenly. (We will refer to this as static inefficiency.) In the international context, taxes on assets vary across firms according to the country of ownership. Also, taxes on capital may vary depending on the relationship between economic depreciation and capital cost allowances of

host and home countries. Since neither Thai nor home country taxes are indexed for inflation, effective tax rates vary across assets depending on their useful life.

Second, capital income taxes distort the allocation of resources over time (dynamic inefficiency). In the presence of company taxation, firms are deterred from investing in capital, causing the economy to shift resources from future to current production.

In a closed economy, it is often argued that withdrawing company income tax reduces static and dynamic inefficiency associated with the taxation of capital income. In an open economy, however, one country's effort to withdraw the company income tax may fail to improve allocative efficiency and, moreover, may lead to a loss in national income from the perspective of the capital importer. This situation arises when capital exporting countries tax multinational investment under the accrual or deferral tax system. If the accrual system is used, reducing the company income tax in the host country does not undo the company tax imposed by the capital exporter. Moreover, it leads to a transfer of revenue from the host to home country public treasury. For the deferral tax system, the company tax levied by the host country does affect investment, but eliminating it would not undo the impact of home country taxes on the multinational's capital decisions. As discussed above, it is also possible that the elimination of the host country tax might deter investment, especially if the host tax rate is more than the home company tax rate.

The above suggests that the capital importer's company tax should be high on foreign capital subject to accrual taxation and low on capital under exemption taxation, with the deferral system generally lying somewhere between these two cases. Such a structure of company taxation is

not feasible in practice, however. Bilateral tax treaties normally contain a provision disallowing discrimination on the basis of country of residence. A limited extent of discrimination may nonetheless be feasible through differentiated non-resident withholding taxes, with relatively low rates applied to exemption countries.

3. Promotion of Investment. Company taxes are often used to support other objectives besides revenue-raising and allocative efficiency. Tax incentives are often used to encourage selected investment activities. For example, tax holidays in Thailand have been used to promote local participation and to enhance growth through import-substitution or export promotion. They have also been used to encourage the relocation of industries in less congested regions.

The use of company tax incentives for investment purposes may not be successful if foreign capital is involved. As discussed above, under accrual taxation, the elimination of a host country tax may simply lead to a transfer of revenue from the host to the home country without affecting investment. Thus, lower company taxes on branch income or lower withholding taxes on remitted income from the host country may be ineffective if these taxes are credited abroad. Under the exemption system, tax incentives can be more effective since host-country taxes are not credited abroad.

Under deferral taxation, the impact of tax incentives is less clear. A lower tax in the host country will not always encourage company investment if the multinational is remitting dividends since the tax incentive will be partly undone by higher taxes paid to the home country on remitted dividends. This suggests that, under the deferral tax system, tax incentives, such as tax holidays, should be restricted to foreign capital

that is imported from capital exporters using the exemption system rather than the accrual or deferral tax regimes.

The above discussions would have to be modified in the presence of a tax sparing provision, which is sometimes granted by capital exporting countries to a less developed host country. This provision enables the multinational to receive a foreign tax credit at home for the taxes exempted in the host country. Under tax sparing, host country's incentives remain effective and may be more attractive than under the exemption system.

4. Distributive Issues. If a capital importing country is not concerned with the welfare of foreigners, distributive implications of company taxes on the income of foreigners are immaterial. However, company taxes in an open economy can affect the wages paid to nationals working for foreign companies. In particular, for a small open economy like Thailand, the effect of a capital income tax may be to lower income paid to labor. Since the net-of-company-tax rate of return paid to shareholders is determined by international markets and unaffected by the small open economy's tax policy, the burden of company taxation may be shifted to labor. Thus, tax relief for foreign companies may be appropriate if the impact of wages is considered desirable.

Again, these issues depend on the tax regimes implemented in the home countries. As discussed above, the most important distributive impacts of host country company taxes arise in the exemption case since the host country tax is not credited abroad. In other cases, tax incentives adopted for distribute reasons are partly undone by increases in taxes paid to home countries.

B. Tax Planning and Tax Competition

Prior to examining Thai tax policy in light of the objectives above, we consider tax planning (or tax arbitrage) and tax competition, which affect some of the conclusions reached in the previous section.

1. Tax Planning. Tax planning refers to the multinational's effort to minimize taxes, including the shifting of the tax base from high to low tax jurisdictions. Some of the strategies include transfer pricing, debt restructuring and the allocation of overhead costs so that expenses are deducted in high-tax jurisdictions and income is reported in low-tax jurisdictions. Tax planning therefore reduces tax revenue accruing to the high-tax country. As a result, countries use other taxes, such as withholding taxes on individuals and companies, to protect revenue.

What is less well known is that tax planning can make a company tax in a high-tax country quite generous to multinational investment. With tax planning, a multinational deducts expenses at a higher statutory tax rate in one jurisdiction and reports income in a low-tax jurisdiction. In effect, capital can be subsidized once tax planning is taken into account.

The effects of tax planning on government revenue and multinational investment in the host country is ameliorated by the deferral and accrual taxation adopted by some capital exporters. With accrual taxation, and to a lesser extent, deferral taxation, it is more difficult to shift income from high-tax to low-tax countries since the transaction triggers more taxes paid to the home country. The gains from tax planning therefore vary across multinational companies depending on their residence.

2. Tax Competition. The second issue is "tax competition" which refers to tax policies chosen by different countries in competition with each other to attract foreign capital.¹³ There are two important aspects

^{13/} Much of this discussion is borrowed from Mintz and Tulkens (1989).

of tax competition that affect a capital importer's tax policy: "tax exportation" and "market power".

a. Motivations for Taxes on Foreign Capital: We first discuss "tax exportation" assuming that the host country is "small" in both capital and product markets. In this setting, company taxes levied on foreign capital have no impact on world prices of traded goods and services. Market power of the host country is discussed afterwards.

As mentioned in the previous section, it may be in the interest of a host country to "export taxes" by taxing the income accruing to foreign investors, or with tax crediting, foreign governments. With respect to foreign investors, it is important to distinguish between industries that earn rents generated in the host country and industries that do not earn rents at all. Rents are defined here as revenues net of the opportunity costs of using labor and capital or revenues net of wages, economic depreciation, interest on borrowed money and the imputed cost of equity finance. If foreign investors do not earn rents in the host country, a company tax on foreign capital may do more harm than good. The reason is that the tax on capital lowers income earned by domestic factors of production by more than the domestic resource costs of importing capital. Thus, for a small open economy, taxing foreign investors who earn no rents may not be in the best interest of the host country.

On the other hand, foreign investors often do earn rents generated in a host country. In this case, a rent tax would be appropriate. One type of tax, often discussed in the literature, is a cash-flow tax which allows capital to be expensed rather than allowing economic depreciation and financing costs to be deducted from the tax base. (This type of tax base is implicitly used in many value-added tax systems.) A cash-flow tax is equivalent to a rent tax since expensing of capital is equal to the

present value of depreciation and financing deductions. However, because no capital exporting countries use cash-flow taxes, a capital importer may find that it must rely on company income taxes, rather than rent tax, to acquire rents. The company income tax is an imperfect mechanism for this purpose since, unlike the cash-flow tax, it falls on both rents and the return to capital, thereby distorting investment decisions.

Much of the above discussion applies to the tax treatment of foreign investment income under the exemption system. If home governments use the deferral or accrual tax regime, an important motivation for company income tax by a host country is to take advantage of the crediting system. The leading question becomes: What instruments to use? Clearly, withholding taxes on remitted income, which are fully credited against foreign taxes under the deferral or accrual systems, ensure that the host country acquires tax revenue without deterring investment. A company tax on rents, if fully credited, could also serve as a useful tax to withhold income accruing to foreign governments. However, the host government may fail to collect sufficient revenue since the tax base, which allows the imputed cost of equity to be deducted, is smaller than the foreign government income tax bases which only allow the cost of debt to be deducted. Moreover, as discussed in Section III above, a rent tax imposed by the host country is not neutral in an international context.

A host country can maximize the value of foreign tax credit by adopting a company income tax similar to that used in the home country. However, under the deferral tax regime, the company income tax is exported (to foreign governments) only when profits are repatriated and not retained. As a result, to the extent that investment is financed by the subsidiary's retentions, the company tax will deter investment.

On remitted income, however, it is possible under the deferral tax for a host country to maximize the amount of company taxes credited against foreign taxes, and at same time eliminate the impact on investment to the extent that the investment is financed by debt held by the subsidiary. As shown in the Annex I, equivalent capital cost allowances used by host and home countries would ensure that the home country tax on remitted dividends would not affect multinational investment financed by retentions. In an international context, this would require host country taxes to vary by country so that tax bases can be matched. This is impossible since the company income tax withholds income without reference to the identity of the taxpayer. As a result, under the deferral tax, the company tax will affect investment even though the company may be remitting a large portion of its investment income abroad. There is thus a trade-off faced by the host country: reducing company taxes may encourage foreign capital but, at the same time, lower revenue being credited against foreign taxes.

Another reason for a capital importing country to use company income taxation is to take advantage of its power over world prices. As discussed above, a small capital importer incapable of influencing world prices would not want to use company taxes, except for its role as a "withholding" tax on personal income. If, however, the country can influence prices of traded goods and services, it may wish to use tax policy to change prices in its favor. With respect to company tax policy, a capital importer would impose a tax on imported capital services used domestically to lower borrowing costs and a capital exporter would subsidize its domestic capital to increase world interest rates that favor its residents. A small country like Thailand would not be able to influence international prices of capital imports. "Market power" considerations are generally not expected to be important in this context.

b. Nature of Tax Competition. As defined above, tax competition results in countries, pursuing their self-interest, choosing tax policies that affect the decisions of other countries. In an international context, each country worries about closely-related jurisdictions which are either capital exporters or are adjacent capital importers that compete for foreign capital and managerial resources. An important question is whether countries must offer a company tax similar to other jurisdictions. We examine this for two cases: capital exporter and competing capital importers.

Capital Exporters and Tax Competition. As discussed above, a company tax imposed by a capital importer may be used to take advantage of tax crediting arrangements. For this reason, a capital importer may wish to use withholding taxes or a similar company tax to maximize tax revenues credited against foreign taxes. If capital exporters, using the accrual or deferral tax systems, lower company taxes on multinational foreign-source income, a capital importer may be forced to reduce its own tax since less tax revenue may be credited abroad, thereby affecting investment. Moreover, under deferral it may also be important to lower tax rates if the country wishes to protect its revenue base. As illustrated by world-wide company tax reform in the 1980s, lower statutory tax rates in capital exporter countries caused many capital importers to reduce their statutory rates; otherwise, the capital importer would find multinationals shifting deductible expenses to its own jurisdictions and reporting income abroad. Also, under the deferral tax system, a company, finding itself in an excess foreign tax credit position because of a lower tax rate imposed by the home country, would take actions, such as debt restructuring of the subsidiary, to use up any excess foreign tax credits.

Competing Capital Importing Countries. When a capital importer is competing with adjacent countries for foreign capital, it is often argued that its company tax must be similar to that of its neighbors. This argument is of limited validity, however. Tax competition among capital importers can be irrelevant if world prices of imported services are unaffected by tax policies of small countries and if a crediting system is used in the home country.¹⁴

Tax competition becomes a concern under two conditions. First, the host's concessions do not reduce foreign tax credits in the home country, either because the home country exempts foreign income or gives tax sparing. Second, the adjacent countries are "large" in relation to each other. Under these circumstances, one country's incentives increase the cost of acquiring resources for another competing capital importer. In response, a capital importer would wish to lower taxes on foreign capital since its tax base is more elastic, making it more difficult to withhold income accruing to foreign investors. Tax competition would cause adjacent countries to reduce their reliance on company tax revenues.

C. Thai Company-Income and Withholding Taxes

As reviewed in Section II, Thai company taxes on foreign capital is composed of two parts: (i) withholding taxes on remitted dividends, branch profits, interest and fees, and (ii) company income taxes. Special tax concessions in the form of company income and withholding tax holidays are given to attract foreign capital in competition with adjacent countries, particularly Malaysia, Philippines, Singapore, and Indonesia.

^{14/} As already discussed above, tax competition is relevant when countries try to maintain their tax revenue base.

In general, withholding taxes in Thailand are lowest on interest remitted to financial institutions and dividends remitted to countries using the exemption system. The rates are highest on remitted income that is deductible for Thai company tax purposes (interest paid to non-financial firms, rent and lease payments, technical and management fees). In addition, foreign owned mutual funds holding SET shares are able to remit income abroad tax free.

The structure of withholding taxes in Thailand illustrates a number of issues raised above. Withholding taxes on income remitted to home countries using the exemption tax system tend to be taxed at a lower rate in recognition of the fact that the tax is not creditable. In some cases, however, tax relief from withholding levies is provided even though the withholding tax may be credited abroad and there is no "tax sparing" (such as exemptions given on dividend withholding taxes for tax holiday companies).

As for the company tax, Thailand has an "average" tax regime, except in those cases where foreign companies qualify for tax holidays, or understate profitability for tax purposes. The Thai statutory tax rate is not out of line with major capital exporters except for Hong Kong which is a tax haven. Thailand also provides tax deductions similar to those of exporting countries, except when compared to the United Kingdom and Singapore, which grant relatively fast writeoffs for multinational foreign investments. This suggests that the Thai company tax, at least in principle, provides an appropriate level of taxation given the tax regimes abroad.

A few features in the Thai company and withholding taxes are of concern, however. These issues illustrate some of the points raised in the earlier two sections.

1. Differences in withholding tax rates among countries with similar tax regimes increase tax planning opportunities. For example, several foreign companies have their Thai subsidiaries remit dividends to another subsidiary in the Netherlands rather than other countries using the exemption system. The reason for this practice is that the applicable Thai withholding tax rate on dividends remitted to Netherlands is only 10%, much lower than the rates applied to other countries using the exemption system. It is desirable to remove the differentials. Moreover, some consideration could be given to raising the tax on interest accruing to foreign financial institutions to a level similar to other remitted income that is deductible from Thai company taxes. The difficulty with the latter is that a withholding tax higher than 10% on interest paid to offshore financial institutions may not be creditable. An alternative is to limit interest deductions of a multinational subsidiary. (See the discussion in item 4 below.)
2. Withholding tax relief should not be given for countries that use the deferral or accrual taxation with no "tax sparing". This particularly applies to withholding tax concessions given under tax holiday provisions. These concessions are unnecessary since only the foreign government gains from such concessions.
3. The Thai definition of "permanent establishment" creates difficulty in international tax law since the Thai authorities often want to ensure that foreign activities that generate income are fully taxable. Many companies raised concerns about the application of Section 76bis of the Thai tax code which allows the Thai authorities to tax foreign companies that may be only exporting goods to Thailand, not "carrying on business in Thailand". Much of the concern seemed to be related to the lack of clear application of the law in this area. This

issue, however, is confined to non-treaty countries, including the United States.

4. Many countries, such as Canada and recently the United States, limit the amount of interest to be deducted by multinational subsidiaries from taxes owing to the host country. In Canada, a "thin capitalization" rule limits "non-arm's length" interest deductions by foreign companies to a certain percentage of assets held by the company. New U.S. rules limit interest deductions of foreign multinationals to a percentage of U.S. taxable income. Thailand currently has no such rules, however. Given the low withholding taxes on certain forms of remitted income, new rules that would reduce the amounts of interest deductions are desirable.

5. The Thai government could consider a special tax or adjustments in withholding taxes that would reduce the incentive for multinationals to use transfer pricing. Transfer pricing arises from understating or overstating commodity prices to shift taxable income from one jurisdiction to another. In the case of Thailand, transfer prices are used to reduce Thai taxes when the Thai statutory tax rate is greater than the tax rate applied abroad. A justification given for using import duties in Thailand has been to reduce the incentive for companies to overstate imported prices. Import duties, however, are not an appropriate instrument for eliminating transfer pricing. Instead, the Thai government could impose special provisions to bring Thai company tax rates in line with trading partners.

6. Data on accounting statements of Thai and foreign companies provide considerable information on company taxes paid to the Thai government. A striking feature is that a large number of companies do not pay any company taxes, particular those companies not listed on the

Stock Exchange of Thailand. In some cases, the firms are extraordinarily unprofitable and in other cases quite profitable. Given that the Thai company tax regime is not ridden with fast writeoffs for capital, it is surprising to find so many companies not paying taxes. A frequent concern raised by many foreign companies is that their competitors are not being taxed at the same level. In part, some companies, especially closely-held ones, avoid paying company taxes by not declaring income either for book or tax purposes, yet the firms may in fact be profitable. Perhaps there is a case for a "minimum tax" that would be creditable against normal company taxes paid by the firm. Such a minimum tax would add complexity to the tax system but it could ensure that all companies bear some tax. The two minimum taxes that could work in Thailand are a tax on distributed profits (dividends, possibly interest) or a tax on the capital assets of the subsidiary (such as the Canadian "Large Corporation Tax"). The minimum tax on distributed profits would level the "playing field" across domestic and foreign companies. If structured correctly, the tax could be creditable against home country taxes on remitted dividends from Thailand.

7. The company-income tax incentives used in Thailand to attract foreign capital raise important issues. The current incentive system uses a company and withholding tax holiday, lasting from three to eight years. As discussed by Mintz (1989), the Thai tax holiday is biased against long-lived capital since the assets are written down during the holiday. The remaining depreciation allowance after the holiday may be too low relative to true economic depreciation, resulting higher effective tax rates than the statutory rates. The Revenue department, however, does not review the income statements of tax holiday firms. It

is thus unclear to what extent depreciation deductions are taken. In addition, the tax holiday allows considerable abuses in that income from related companies can be shifted into tax holidays companies.

The tax holiday incentive also raises several policy issues in an international context. First, the incentive may be partly undone by taxes imposed by capital exporting countries that use the deferral or accrual tax system. This is particularly important for United States, Taiwanese and Japanese firms¹⁵ to the extent that tax holiday profits are remitted abroad as dividends. Second, the argument given by the authorities for tax holidays is that other adjacent countries also provide tax holidays. As a result of tax competition, these concerns can be exaggerated. Moreover, it is not entirely true that a tax incentive must be in the form of a tax holiday. Singapore attracts considerable foreign capital without a tax holiday; it does, however, provide accelerated depreciation that is biased in favor of long-lived assets.

^{15/} Under a new treaty between Thailand and Japan negotiated in 1989, a tax-sparing provision is included so that the Thai tax holidays do not lead to more tax revenue collected by the Japanese government. There was, however, a period of more than ten years (1977-89) when the tax-sparing provision contained in an earlier treaty was suspended.

V. INTERNATIONAL STANDARDS FOR TAX POLICY

In the previous sections, we looked at policy issues from the perspective of a capital importing country like Thailand. In this section, we take a different point of view and consider how tax systems can be harmonized internationally. We have seen that one of the major reasons for the taxation of foreign capital by a capital importer is to "export taxes" or to withhold the income that would otherwise accrue to foreign investors or governments. This is an example of a "beggar thy neighbor" policy in which countries in pursuing their own interest fail to choose appropriate policies that would maximize world-wide rather than national, economic income.¹⁶

A fundamental policy question in an international context is whether countries, acting independently, levy too much or too little in company taxes relative to a harmonized tax system. It is usually argued that tax competition leads to low levels of company taxation since a national government tends to perceive its tax base as being more elastic than without competition. Company taxes, according to this argument, tend to be set too low in a competitive environment: cooperative agreements would ensure that more taxes are levied.

To judge whether taxes are too high or too low in a competitive environment, we introduce the concept of "fiscal externalities". A fiscal externality arises when taxes imposed by one country either diminish

^{16/} Most industrial countries, however, acknowledge the need to promote capital flows to developing countries, possibly on humanitarian rather than economic grounds. The pervasive use of tax sparing (which protects the benefits of tax concessions granted by developing countries) is a good indication.

(negative externality) or enhance (positive externality) the welfare of another country. When fiscal externalities are negative, taxes chosen by a country in a competitive environment are too high since the country ignores the economic costs imposed on other jurisdictions. Similarly, where fiscal externalities are positive, tax rates are too low since the country ignores the benefits of its tax policy on other jurisdictions.

With respect to company income and withholding taxes imposed by a host country on foreign capital, both types of fiscal externalities can arise. As emphasized earlier, taxes that are "exported" impose a negative externality by reducing the income of foreign investors or governments; as a result, governments pursuing their own interest choose tax rates that are too high. Tax competition, which tends to reduce taxation, may be therefore viewed as beneficial in terms of world-wide economic efficiency. Since a lower tax imposed by the capital exporter reduces the incentive for capital importers to impose high company taxes, tax competition lessens the impact of the fiscal externality.

The other fiscal externality created by company taxes is of the positive type. When a government raises its tax on foreign capital, the tax, if not fully credited abroad, reduces the supply of capital and shifts the tax base abroad. This benefits other countries to the extent that there is more capital available and their tax base expands.¹⁷ With this fiscal externality, uncoordinated tax rates tend to be too low. Moreover, tax competition, which causes governments to choose lower tax rates, worsens the fiscal externality.

^{17/} It is not always the case that a higher tax in one country expands the tax base of another. For example, if capital flows into non-taxed assets, other countries may not benefit from increased tax revenues.

In general, company taxes may be chosen too high or low in a competitive environment depending on which effect dominates. We can note, however, that when capital exporters rely on deferral or accrual tax systems, it is more likely that company taxes are set too high. With the exemption tax regime, it is ambiguous as to whether company taxes are set appropriately.

The above suggest that there are gains to be made by co-ordinating tax policies across countries.¹⁸ Current international tax cooperation, however, is done on a bilateral rather than multilateral basis. This contrasts sharply with current trade negotiations (GATT) and monetary policy cooperation (G-7) that are done on a multilateral basis. As a result of this bilateral approach, governments have achieved little in limiting tax competition, as illustrated by the analysis of Thailand contained in Sections III and IV of this report.

An Assessment of the Bilateral Approach to Tax Harmonization

Bilateral tax treaties coordinate four major aspects of international tax policy between negotiating partners: (i) the definition of "permanent establishment", (ii) the rate of withholding taxes on qualifying remitted income, (iii) non-discrimination of tax policy between domestic and foreign-controlled companies operating in a host country, and (iv) special provisions such as tax sparing, the exemption of foreign-source income or the crediting of host taxes against home country taxes on foreign-source income.

Tax treaties do not cover all aspects of taxation that might affect international flows of income. In particular, company income tax rates and

^{18/} It is conceivable that international tax cooperation may lead to elimination of tax concessions and eventually to higher company taxes levied by a group of countries. There are important moderating influences, however. First, home-country tax rates tend to set an upper limit on host countries' taxes. Second, there remains tax competition from other groups or regions of potential hosts.

provisions are rarely subject to treaty negotiations even though foreign investors are subject to taxes imposed by the host country. Company taxes are excluded from treaty negotiations because they are regarded as domestic taxes, unlike withholding taxes on remitted income. The non-discrimination clause, sometimes included in the treaty, is meant to ensure that host countries do not unduly tax foreign capital or vary company-tax provisions across treaty partners.

Yet, company taxes imposed by host countries are often used to withhold income from foreigners. The non-discrimination clause is intended to eliminate the incentive to tax foreign capital; nonetheless, the incentive still remains as we argued above in Section IV. In fact, countries go to some length to reduce taxes levied on domestic capital. For example, Canada explicitly provides a dividend tax relief for resident shareholders only and Thailand provides tax relief primarily aimed at Thai-controlled firms that are listed on the SET.

It is thus clear that treaties fail to fully coordinate company tax policy; only certain provisions are subject to coordination. In fact, some international tax provisions lead to tax policies that diminish rather than increase cooperation. As stressed throughout this report, the foreign-tax-credit mechanism used by capital exporters encourages capital importers to rely more on company income taxes. Some capital exporters credit host country taxes paid by resident multinationals operating in treaty countries only. With a treaty in place, capital importers are encouraged to raise company taxes since the home country government bears some of the tax. If company taxes were also subject to negotiation, capital importers would not be able to change them unilaterally.

Bilateral treaties are intended to accomplish several important objectives. And, it would be useful to judge the results of bilateral treaty negotiation against these objectives:

(i) Revenue Sharing. Tax revenues are distributed between host and home countries according to negotiations.

(ii) Efficiency. Tax harmonization attempts to eliminate the impact of tax on the world-wide allocation of capital.

(iii) Inter-country Equity.¹⁹ Taxpayers of similar type bear the same level of taxes no matter what country they reside in.

The results of Section III suggest that the bilateral approach to treaty negotiation has not eliminated non-neutralities associated with company taxes. Effective tax rates vary considerably across firms and assets, depending on the ownership and type of tax regime used by the capital exporter. It is thus difficult to argue that treaties have successfully achieved international equity or world-wide efficiency. The main contributions of bilateral tax treaties are to limit the extent of overtaxation, which would occur if host-country taxes are not recognized in the home country, or if deductions instead of tax credits are given at home.

Treaties have also been unsuccessful in revenue-sharing. The main problem is that only selected aspects of international taxes are subject to treaty negotiation, as we have argued above. Negotiated withholding tax rates ensure that tax revenues are shared between countries. However, the absence of negotiation over company income taxes means that there is no explicit agreement to share company tax revenues.

A Multilateral Approach

It is not surprising that bilateral negotiations have led to a hodge-podge of effective tax rates on multinational capital. The

¹⁹/ Musgrave and Musgrave (1982).

multilateral approach provides an alternative. It is commonly found in the context of federations where regional or provincial governments agree to use a common approach for taxing companies operating in several jurisdictions. We consider two possible schemes under the multilateral approach to tax treaties.

The first scheme is currently used at the international level: taxing companies on the basis of separate accounting. A company calculates its taxable income of a permanent establishment operating in a specific jurisdiction according to the jurisdiction's tax law, or a common base agreed upon by all governments. Usually, each government collects taxes by applying its own tax rate to the tax base.

Two principles of taxation are used in this context. First, there is the "source-based" tax in which a jurisdiction taxes income earned within its territory even though some of the income accrues to foreigners. With source-based taxation, foreign-source income earned by the resident multinational would be untaxed. As a result, a country can achieve "capital import neutrality" whereby companies in a jurisdiction, regardless of ownership, face the same rates of taxation. However, "capital export neutrality" is violated since a multinational with residence in a source-based jurisdiction faces different effective tax rates on investments placed at home and abroad. Under this rule, capital export neutrality requires a common company tax rate and common definition of taxable income across countries.

Second, there is "residence-based" taxation in which a jurisdiction taxes income accruing to residents, not to foreigners. Income earned by foreign-owned companies in such a jurisdiction would be exempt from tax. Foreign-source income earned by resident multinationals would be fully taxed. Under residence-based taxation, "capital export neutrality" is achieved but not "capital import neutrality" since companies of different

ownership operating in a residence-based jurisdiction would face different effective tax rates.²⁰ The residence-based tax regime gives no incentive to export taxes since foreign capital is not taxed.

In principle, the separate accounting approach should achieve a fair allocation of capital across jurisdictions. But, this is theoretically possible only if all tax rates and provisions are the same across countries to simultaneously achieve capital-export and capital import neutrality. But in practice there are a number of difficulties. One problem is that overhead expenditures are difficult to attribute to a specific location. Another problem is that companies try to allocate taxable income to low-tax jurisdictions, as we discussed above in relation to transfer pricing and debt restructuring.

A second scheme under the multilateral approach is known as the "formula apportionment". It requires governments to agree to a commonly defined tax base and levy their own tax rate on income apportioned to the jurisdiction. This method is used by the United States and Canada for the payment of company taxes to local governments. The tax base for a state or province is given by a share of national taxable income earned by an establishment; the share is based on a predetermined combination of weights, such as the jurisdictions's share of revenues, wages and/or assets. Sometimes, as with the case of Canada, the tax base is largely determined by the central government.

The formula apportionment method leads to some behavioral effects that can be important. As Gordon and Wilson (1985) point out, the use of assets to apportion income encourages firms to report asset expenditure in low tax rate jurisdictions to minimize taxes. If sales revenues are used,

^{20/} Capital import neutrality under the residence rule requires a common company tax rate and common definition of income across countries.

there is an incentive for integrated firms to use transfer pricing to shift revenues from high to low tax jurisdictions. These problems are already familiar to the reader in our discussion of earlier sections of this report.

The multilateral approach for the conduct of tax policy would be more difficult in an international context compared to that in a federation. There is no central government that could use its economic policy to encourage cooperative behavior among states. As with multilateral trade negotiations, it can be very difficult to achieve cooperative behavior among a large number of countries. Nonetheless, two points can be made concerning the possibilities of an agreement.

First, the increasing integration of capital markets across countries is forcing governments to reconsider company tax policies in light of capital mobility. As we saw in Section III of this report, it is virtually impossible for an individual country to achieve tax neutrality and allocative efficiency in an international framework. If countries wish to remove distortions of capital flows, multilateral tax coordination becomes necessary. It is also becoming increasingly difficult for countries to maintain company tax revenues. Company taxes have grown least, or declined, in many countries. As capital markets become more integrated, companies are more able to take advantage of differences in tax regimes across countries.

Second, a multilateral approach can be attempted on a limited scale. Only a few closely-related countries are needed to negotiate a multilateral tax treaty, using a common set of rules for internal and external relations. A limited approach may be necessary as a first step towards better international coordination than has been experienced in the past several decades.

APPENDIX

TAXATION OF MULTINATIONAL INVESTMENT: DERIVATION OF TECHNICAL RESULTS

This Annex provides a formal derivation of the cost of capital for multinational firms. Three tax regimes governing foreign-source income by the capital exporting (home) country are considered:

(i) Deferral in which remitted dividends and earnings to the parent are taxed by the home country (retentions of a subsidiary operating in a foreign country is exempt);

(ii) Exemption of foreign source income in which either of two cases may prevail: full exemption (all subsidiary income, retained or remitted to the parent is exempt from taxation by the home country) and partial exemption (interest, royalty and management fees received by the parent are taxed by the home country while dividends and retentions of the subsidiary are exempt) and;

(iii) Full taxation (or accrual) in which all forms of remitted and unremitted income is taxed by the home country (i.e. branch income).

The analysis begins with the case of deferral which is the most complicated. Normally, one would like to put off the most difficult case to the last. However, there are two reasons for presenting deferral prior to the other cases. First, it is easy to derive the cost of capital for the other cases from the techniques used for deferral. Second, the results arising from our analysis of deferral tax systems are quite unconventional, turning previous results in the literature "on their head". A few comments are appropriate here, prior to the technical derivation of results, to emphasize this last point.

In an important contribution by Hartman (1985), it was found that subsidiary investments financed at the margin by retentions are only influenced by the host country's tax system even though remitted dividends are taxed by the home country. This result, similar to earlier ones on the capitalization of dividend taxes (Auerbach, 1979), relies on the notion that dividends, the difference between investment expenditure (net of local financing) and retentions, are lump sum income. When a home country imposes a tax on dividends, the tax is only "lump sum" not affecting the investment decision of the multinational. To put it in another way, dividend taxes are capitalized in the value of the firm: when the firm finances its investment by retentions, the dividend tax reduces the net future earnings of the investment by the same amount that the firm saves by not paying out current dividends.

The result of Hartman's has been very important in assessing the impact of international taxes on subsidiary investments of foreign multinationals resident in countries that use "deferral" taxes. As observed by Hartman, most investment is financed by retentions or local debt. His theorem, suggests that only the host country company income tax is relevant to the decisions of the subsidiary, not that of the home country. Recent work on transfers of multinational parents to their subsidiaries questions the full applicability of the Hartman result (Jung, 1987). Since subsidiaries might finance investment with transfers (and simultaneously receive dividends in return), then all taxes on dividends by the home country may affect investment decisions.

In reaction to the above, some analysts suggested that home country taxes do not influence investment decisions if there is no home tax payable on the dividends. In particular, if a subsidiary is in an excess foreign tax credit position (i.e. the host country tax on remitted dividends is

greater than the tax owed to the home country), the Hartman result can be restored even if transfers are made by the parent to the subsidiary. Hines and Hubbard (1989) suggest little or no tax is paid on remitted earnings by U.S. multinationals since the companies are often in an excess foreign tax credit position with respect to their subsidiary dividend payments (these excess foreign tax credits may be applied against taxes on other income).¹

The analysis below examines the proposition that home country taxes do influence investment decisions of subsidiaries using retentions and that the Hartman result is incorrect. The reason for this proposition arises from the way in which the home tax on remitted dividends is modelled. Hartman (and many others before him) modelled the home tax rate on dividends as exogenous, independent of any subsidiary decisions. However, as pointed out by Bruce (1989), the formula used to calculate the home tax on dividends is quite complicated, depending on the definitions of taxable income by the host country, the home country and the value of dividends. If one models the home country tax on remitted earnings correctly, the home tax rate on foreign-source income is not independent of subsidiary financing and investment decisions unless the tax bases used by the host

^{1/} According to Hines and Hubbard's view, firms in excess foreign tax credit positions do not pay taxes on dividends. Under pre-1988 U.S. law, this view would be largely correct. In fact, by examining data for 1984, Hines and Hubbard find that many U.S. firms are using the "rhythm method": when repatriating income to the United States the subsidiary pays a large amount of host country taxes, delaying discretionary deductions and investment tax credits to later years when they are not expected to remit dividends. This way the firm would be in an excess foreign tax credit position, wipe out any U.S. taxes owing in the year and reduce host corporate taxes in later years. Recent U.S. tax reform requiring the foreign tax credit to be based on accumulated earnings over time reduces the value of using the "rhythm" method and increases the likelihood of taxes being paid on dividends even though a firm may be in an excess foreign tax credit position in a given year. Thus, the U.S. firm must be in a permanent excess credit position if it is to pay no taxes to the U.S. government on remitted earnings.

and home countries are the same. Thus, even if the subsidiary finances its investment by retentions and local debt, the home country tax system is still relevant to the cost of capital of the subsidiary. This result holds because the investment and debt decisions of the subsidiary affect the home country tax payable on dividends. As a consequence, the home country tax is no longer lump sum as it influences both the financing and investment decisions of the firm.

One might argue, however, that the home country tax system is irrelevant to subsidiary investment decisions if the parent is in an excess foreign tax credit position. This argument is correct only if the company is in an excess credit position on all forms of foreign-source income, not just dividend income. Having excess foreign tax credits, however, is not a tax minimizing strategy.² A company would wish to apply excess foreign tax credits on other qualifying forms of foreign income, such as royalties, management fees and interest remitted from the same country, dividends and other forms of remitted income from other countries and, under the new U.S. rules, dividends to be paid in the future. If the corporate income tax rate is high in the host country, there is an additional benefit of restructuring income so that the company earns more domestic source income relative to foreign source income. Thus, a company may often choose to be

2/ In the wake of U.S. tax reform, accounting firms in Canada have developed strategies that allow Canadian subsidiaries of foreign companies to use up Canadian foreign tax credits. One strategy is to restructure the debt of the subsidiary so that the corporate tax owing to Canada, and the resulting excess foreign tax credit, is reduced. If the parent also holds the subsidiary debt, the home country tax on interest income may be used to soak up excess foreign tax credits. See Tax Planning for Canadian Subsidiaries of U.S. Companies, Arthur Andersen Company, Toronto, 1989.

in a deficient foreign tax credit position. When this happens, the subsidiary's investment and debt financing influences the excess foreign tax credits that can be used against home taxes on other forms of income.

As we show below, the cost of capital of the subsidiary depends on the home country tax system under deferral even if only retentions are solely used to finance investment. Three factors are relevant: (i) the host country tax system, (ii) the "tax-adjusted" dividend payout ratio (dividends divided by post-tax earnings of the subsidiary as defined by the host country's tax law) and (iii) differences between statutory tax rates in the host and home countries as well as the "adjusted" average tax rate relative to the home country's tax definition of subsidiary profits.

I. The Basic Model for Deferral Taxation

We consider a model of a subsidiary owned entirely by a parent resident of a foreign country that uses the deferral method. The model assumes that the subsidiary finances capital by retentions or local debt. The multinational parent finances its capital by raising debt at home or using retentions generated by other operations. There are no equity transfers made by the parent to the subsidiary.³

Let nominal dividends earned by the subsidiary in period t be D_t prior to remittance to the parent and denominated in local currency of the host country. Dividends earned are equal to revenues net of gross investment expenditures financed by retentions, borrowed financing costs and corporate taxes. The subsidiary's nominal revenues are $e^{\pi t} F[K_t]$ where

3/ It would not be difficult to include equity transfers from the parent to the subsidiary for empirical work. However, to emphasize the points obtained by the theoretical model, we ignore such transfers to keep the model simple.

π is the local rate of inflation and $F[\cdot]$ is a strictly concave function defined over the capital stock, K_t . Nominal investment expenditure is equal to $e^{\pi t}(\dot{K}_t + \delta K_t)$. The subsidiary finances capital with new issues of nominal bonds equal to \dot{B}_t and pays out interest on its stock of bonds equal to iB_t , (i is the nominal interest rate of local debt). Letting T_t denoting corporate taxes paid by the subsidiary, its nominal dividends are thus the following:

$$D_t = e^{\pi t} F[K_t] - e^{\pi t}(\dot{K}_t + \delta K_t) + \dot{B}_t - iB_t - T_t \quad (1)$$

Corporate taxes paid to the host country in local currency is levied at the rate u on nominal revenue net of capital costs allowances and interest costs:

$$T_t = u(e^{\pi t} F[K_t] - \hat{K}_t - iB_t) \quad (2)$$

whereby α is the capital cost allowance rate on an exponential basis and \hat{K}_t is the undepreciated capital cost allowance base. This base is that used for tax purposes and is equal to the remaining amount of undepreciated investment expenditures accumulated since the start-up time τ to the current period:

$$\hat{K}_t = \int_{\tau}^t (\dot{K}_s + \delta K_s) e^{\pi s} e^{-\alpha(t-s)} ds \quad (3)$$

The above values denoted in local currency can be converted into the home country's currency by using the exchange rate x_t , expressed as units of home currency per unit of host currency, such as U.S. dollar per Baht. We assume that the exchange rate in every period is determined by purchasing power parity. Letting the initial value of the exchange rate be equal to unity, $x_t = e^{\pi^* t} / e^{\pi t}$ with π^* denoting the inflation rate in the home country. Thus, if the anticipated inflation rate in the home country

is higher than the local inflation rate, the local currency appreciates in value, increasing the value of dividends remitted to the home country. Multiplying the value of dividends in local currency by the exchange rate and substituting equation (2) into (1), we obtain the following expression for dividends denoted in the home country's currency:

$$D_t^* = x_t D_t = e^{\pi^* t} F[K_t](1-u) - (\delta K_t + \dot{K}_t) e^{\pi^* t} + e^{(\pi^* - \pi) t} (u \alpha \hat{K}_t + \dot{B}_t - i B_t (1-u)) \quad (4)$$

The Determination of Taxes on Remitted Income

When a multinational remits dividends, it pays a withholding tax to the local government equal to θD_t in local currency, or, in home country currency, θD_t^* . This withholding tax, in the case of deferral taxation, is credited against the corporate income tax levied on foreign-source income by the home country. Also, corporate income taxes deemed to be paid on dividends in the host country are credited against home country corporate taxes, if there is sufficient ownership by the parent. (In the U.S. the level of ownership required for an indirect corporate tax credit is 10% and in some countries as low as 5%).

The credit for corporate income taxes under deferral is quite complicated, based on the dividend payout ratio of the subsidiary as defined by the home country tax authorities. The exact calculation of the credit for deemed corporate taxes is the following. The amount of foreign corporate income taxes credited by the home country is deemed to be a proportion of local corporate taxes denoted in the home country's currency. The proportion used is dividends remitted (in home country currency) divided by net-of-foreign tax earnings of the subsidiary as defined by the home country: taxable profits of the subsidiary less foreign taxes, all

denoted in the home country's currency. The foreign tax credit given by a country using the deferral method for corporate income and withholding taxes paid in the host country is equal to:

$$FTC_t = (T_t x_t D_t^* / (\Pi_t^* - x_t T_t)) + \theta D_t^* \quad (5)$$

with Π_t^* denoting taxable profits of the subsidiary as defined by the home country. (An expression for taxable profits is explicitly derived below).

The amount of corporate income tax paid to the home country is also complicated since dividends, gross of withholding and corporate taxes in the host country, are taxable as foreign-source income. The taxable value of gross dividends is calculated as the proportion of profits attributed to the dividend payout. This proportion is the same as that calculated for the foreign tax credit. The corporate tax paid to the home country is thus equal to the rate of tax, u^* , multiplied by the taxable earnings attributed as remitted to the parent, net of the foreign tax credit:⁴

$$T_t^* = u^* \Pi_t^* D_t^* / (\Pi_t^* - x_t T_t) - FTC_t$$

$$= D_t^* \left[\frac{u^* \Pi_t^* - T_t x_t}{\Pi_t^* - T_t x_t} \right] - \theta D_t^* \quad (6)$$

The value of the subsidiary's taxable income as defined by the home country is equal to revenues net of deprecation (measured according to the capital

⁴/ Another way of calculating the tax owing to the home government is by measuring foreign source income of the parent as dividends received (gross of withholding taxes paid to the host country) plus corporate taxes paid to the host country attributed to the dividends. This implies that $T_t^* = u^* [D_t^* + x_t T_t D_t^* / (\Pi_t^* - T_t x_t)] - FTC$. Note that we would obtain the same expression for equation (7) using this interpretation.

cost allowance rate used by the home country's tax authorities) and interest costs denoted in the home country's currency:⁵

$$\Pi_t^* = e^{\pi^* t} F[K_t] - \alpha^* \hat{K}_t^* - i B_t x_t \quad (7)$$

Similar to equation (3), the value of the undepreciated capital cost allowance base, \hat{K}_t^* , is the sum of undepreciated gross investment expenditures of the subsidiaries, denoted in the home country's currency:

$$\hat{K}_t^* = \int_{\tau}^t x_s e^{\pi^* s} (\dot{K}_s + \delta K_s) e^{-\alpha^*(t-s)} ds = \int_{\tau}^t e^{\pi^* s} (\dot{K}_s + \delta K_s) e^{-\alpha^*(t-s)} ds \quad (8)$$

We may note that the terms in equation (6) can be combined to obtain the following:

$$X_t = u^* \Pi_t^* - x_t T_t = (u^* - u) e^{\pi^* t} F[\cdot] - (u^* - u) i B_t x_t - (u^* \alpha^* \hat{K}_t^* - u x_t \hat{K}_t \alpha) \quad (9)$$

$$Y_t = \Pi_t^* - x_t T_t = e^{\pi^* t} F[\cdot] (1 - u) - (\alpha^* \hat{K}_t^* - u x_t \hat{K}_t \alpha) - (1 - u) x_t i B_t \quad (10)$$

The Value of the Multinational's Investment in the Host Country

We are now in position to describe the value of the multinational's investment in the host country, taking into account both the host and home country's tax systems. Denoting D_t^h as the net-of-tax dividend received by the parent from the subsidiary in period t , it can be

^{5/} In this formulation, it is assumed that there are no interest costs incurred in the home country that are allocated to the subsidiary's taxable profits generated in the host country. Recent changes to U.S. tax law requires that interest costs be apportioned between subsidiary and parent taxable income according to the proportion of assets held in each country. This could be modelled as well using the techniques presented in this section.

shown to be equal to the value of remitted dividends net of the "repatriation" tax, σ_t , as shown in Bruce (1989):

$$D_t^h = D_t^*(1-\theta) - T_t^* = D_t^* (1 - \sigma_t) \quad (11)$$

with the repatriation tax equal $\sigma_t = \frac{u^*\Pi_t^* - x_t T_t}{\Pi_t^* - x_t T_t} = x_t/Y_t$, whereby the numerator, excess home country taxes on foreign source profits, is defined by equation (9) and the denominator, "adjusted net-of-foreign tax profits" is defined by equation (10). The withholding tax imposed by the host country on dividend remittances is eliminated by the tax credit given by the home country. Thus, the repatriation tax only depends on differences between host and home country taxes on subsidiary profits.

Income received by the multinational parent is equal to net-of-tax dividends less any accrued capital gains taxes paid by the parent on equity holdings in the subsidiary, cE_t . The effective accrued capital gains tax is a fiction in that, at most, a parent pays capital gains taxes (usually to the home country) only at the time that assets are sold in a foreign country. For purposes of the model, we include an "accrual-equivalent" capital gains tax rate to complete the model.

The present value of the income accruing to the parent is equal to nominal flows of income, discounted by the nominal discount rate of the parent, ρ , which is defined more precisely later:

$$E_0 = \int_0^{\infty} e^{-\rho t} (D_t^h - cE_t) dt = \int_0^{\infty} e^{-\rho/(1-c)t} (D_t^* (1-\sigma_t)/(1-c)) dt \quad (12)$$

As shown by Boadway [1988], the right hand side of expression (12) is obtained by differentiating the middle expression with respect to t , dividing the differential equation by $(1-c)$ and solving for the expression

on the right hand side, using the definition of D_t^h . An important property to note with respect to the above expression is that the repatriation tax is not necessarily independent of time, depending on decisions made by the subsidiary.

Prior to solving the model, two points are made here to delineate the above expressions for taxes paid on foreign source income (equations (6), (4), (9), and (10)) from earlier work in the literature. First, the rate of corporate taxes levied by the home country on foreign source income is independent of financing and investment decisions only under very restrictive conditions as established by the following lemma:

Lemma: Condition for the Exogeneity of the Home Country's Tax Rate Under Deferral Taxation:

Let the following two conditions hold:

- (a) host and home country tax depreciation rates are the same ($\alpha = \alpha^*$).
- (b) inflation rates are the same ($\pi^* = \pi$).

Then, $\sigma_t = (u^* - u)/(1 - u)$.

Proof: If $\alpha^* = \alpha$ and $\pi^* = \pi$, $\hat{x}_t K_t = \hat{K}_t^*$ for all t using equations (3) and (8).

From equations (9) and (10) $u^* \Pi_t^* - x_t T_t = (u^* - u) \Pi_t^*$ and $\Pi_t^* - x_t T_t = (1 - u) \Pi_t^*$.

This implies $\sigma_t = (u^* - u)/(1 - u)$.

The home country tax, σ_t , is independent of capital stock and financing decisions of the subsidiary if the tax bases of the host and home countries are equivalent. It is clear this requires capital cost allowances to be equivalent. It also requires inflation rates to be identical. The reason for this latter result is that the capital cost allowance base used for tax purposes by the host country is based on investment expenditures that rise in nominal terms by the inflation rate of the host country. However, the home

country calculates the capital cost allowance base in a different way. First, it converts nominal investment expenditures denominated in the host currency into home currency. Then, it adds up the undepreciated amount of past investment expenditures to arrive at the capital cost allowance base, \hat{K}^* .

When the repatriation tax is exogenous, the value of the tax on dividends is equal to the difference between host and home country statutory tax rates on the grossed up value of dividends. The withholding tax rate disappears because it is fully credited. This treatment of the tax on foreign source income is the "textbook" version used for descriptive purposes. (See for example, Brean [1982] and Alworth [1988]). Moreover, since the tax rate on each dollar of dividends received is independent of subsidiary investment and financing decisions, the above conditions lead to the Hartman result that investment decisions, financed by retentions, are independent of the home country's tax system. In general, however, this determination of the tax rate on foreign source income and the impact on investment is too simplistic.

The second point is that we assume that in every period the firm is able to use its foreign tax credits owing on dividend repatriations. In particular, the tax paid to the home country in equation (6) may be positive (deficient foreign tax credits) or negative (excess foreign tax credits). The latter case applies only when the multinational is able to use excess foreign tax credits on dividends against taxes owing on other remittances of foreign-source income. In our model, $T^* \leq 0$ implying that any excess foreign tax credits on dividends are applied to taxes on other foreign-source income. Otherwise, if the multinational is in an excess foreign tax credit position for all forms of income, it pays no tax on any income to the home country⁶

⁶/ We also do not try to model the new U.S. rules applying to the calculation of taxes on foreign source income based on accumulated dividends and profits over time to define the dividend payout ratio.

implying that $\sigma_t = 0$. (This case is described below when we turn to the full and partial exemption treatment of foreign source income.)

Solutions to the Model

The problem for the multinational is to maximize the value of its equity (equation (12)) subject to two constraints which are the equations of motion for the evolution of the undepreciated capital cost allowance used by the host and home countries:

$$\dot{\hat{K}}_t = -\alpha \hat{K}_t + e^{\pi t} (\dot{K}_t + \delta K_t) \quad (13.1)$$

$$\dot{\hat{K}}_t^* = -\alpha^* \hat{K}_t^* + e^{\pi^* t} (\dot{K}_t^* + \delta K_t^*) \quad (13.2)$$

The control variables for the multinational are thus K_t , \hat{K}_t , \hat{K}_t^* , and B_t which maximize E_0 subject to the constraints (13.1) and (13.2) for each period of time. Denoting the Lagrange multipliers for each of these constraints respectively as $\lambda_1(t)$ and $\lambda_2(t)$, the Euler conditions for the above problem yield the following:

$$\begin{aligned} K_t: & (1-\sigma_t)(F'_t(1-u)-\delta) + \lambda_1 e^{(\pi-\pi^*)t} \delta(1-c) + \lambda_2 \delta(1-c) - D_t^* e^{-\pi^* t} \frac{\partial \sigma_t}{\partial K_t} \\ & - (\rho/(1-c)-\pi^*)\{(1-\sigma_t) - \lambda_1 e^{\pi t}(1-c) - \lambda_2(1-c)\} + (\dot{\lambda}_1 + (\pi-\pi^*)\lambda_1)e^{\pi t}(1-c) \\ & + \dot{\lambda}_2(1-c) + \dot{\sigma}_t \end{aligned} \quad (14.1)$$

$$\text{with } \frac{\partial \sigma_t}{\partial K_t} = \frac{[u^*-u-\sigma_t(1-u)]F'_t}{Y_t^r},$$

$$Y_t^r = Y_t e^{-\pi^* t}, \quad D_t^{r*} = D_t^* e^{-\pi^* t} \quad \text{and}$$

$$\dot{\sigma}_t = \frac{(u^*-u)[F'_t \dot{K}_t - i(\dot{B}_t - \pi B_t)e^{-\pi t}] - u^* \alpha^* (\dot{\hat{K}}_t^* - \pi^* \hat{K}_t^*) e^{-\pi^* t} - \alpha u e^{-\pi t} (\dot{\hat{K}}_t - \pi \hat{K}_t)}{Y_t^r}$$

$$- \frac{\sigma_t}{Y_t^r} (F'_t \dot{K}_t (1-u) - \alpha^* (\dot{K}_t^* - \pi^* K_t^*) e^{-\pi^* t} + u \alpha (\dot{K}_t - \pi K_t) e^{\pi t} - i (B_t - \pi B_t) e^{\pi t} (1-u))$$

$$\hat{K}_t: u \alpha e^{-(\pi - \pi^*)t} (1 - \sigma_t) - \lambda_1 \alpha (1-c) - D_t^{r*} \frac{\partial \sigma_t}{\partial \hat{K}_t} = ((\rho/(1-c) - \dot{\lambda}_1)(1-c))$$

$$\text{with } \frac{\partial \sigma_t}{\partial \hat{K}} = \frac{u \alpha e^{-\pi t}}{Y_t^r} (1 - \sigma_t) \quad (14.2)$$

$$\hat{K}_t^*: D_t^{r*} \frac{\partial \sigma_t}{\partial \hat{K}_t^*} - \alpha^* \lambda_2 (1-c) = ((\rho/(1-c)) \lambda_2 + \dot{\lambda}_2)(1-c)$$

$$\text{with } \frac{\partial \sigma_t}{\partial \hat{K}_t^*} = [\sigma_t - u^*] \frac{\alpha^* e^{-\pi^* t}}{Y_t^r} \quad (14.3)$$

$$B_t: (1 - \sigma_t) i (1-u) - \frac{D_t^r}{Y_t^r} \{i(u^* - u) - \sigma_t (1-u) i\} = [\rho/(1-c) - \pi^* + \pi] (1 - \sigma_t) + \dot{\sigma}_t \quad (14.4)$$

Interpretation of First Order Conditions

These complicated optimality conditions for the investment and financing decisions of the subsidiary can be easily manipulated to obtain equilibrium conditions for the capital stock and debt policy of the subsidiary. The steady state conditions turn out to be rather simple. With capital stock constant, the real value of depreciation allowances in home country currency and the stock of bonds being constant over time, the

"repatriation tax", σ , on remitted earnings is constant.⁷ Combining equations (14.1), (14.2) and (14.3) we obtain the cost of capital formula for a subsidiary as follows:

$$F' = \frac{(\delta + \rho/(1-c) - \pi^*)}{(1-\bar{u})} (1-A)$$

$$\bar{u} = u + d[u^* - u - \sigma(1-u)]$$

$$A = \frac{u\alpha(1-d(1-\sigma))}{\rho/(1-c) + \alpha - \pi^* + \pi} + \frac{d(u^* - \sigma)\alpha^*}{\rho/(1-c) + \alpha^*}$$

and $d = D_t^*/[Y_t(1-\sigma)]$ (the "tax adjusted" dividend payout ratio).

The cost of capital for the multinational subsidiary is somewhat different from the usual formulation obtained for domestic-controlled firm. The main differences lie with the adjustments made for the impact of investment decisions on the repatriation tax faced by the parent on remitted earnings. With the holding of capital, the parent incurs depreciation costs (δ) and real financing costs, the opportunity cost of equity financing adjusted for the home country's inflation rate: $\rho/(1-c) - \pi^*$. The net

7/ More formally, these steady state conditions are the following:

$$(i) \quad \dot{K}_t = 0 \text{ and } \dot{B}_t = \pi B_t.$$

$$(ii) \quad \dot{\lambda}_1 = -(\pi - \pi^*)\lambda_1 \text{ and } \dot{\lambda}_2 = 0$$

$$(iii) \quad \hat{K}_t = \delta K_t e^{-\alpha t} \int_e^t e^{-(\alpha+\pi)s} ds - \delta K_t e^{\pi t} / (\alpha + \pi) \text{ for } t = -\infty \text{ and}$$

$$\hat{K}_t^* = \delta K_t e^{\pi^* t} / (\alpha^* + \pi^*) \text{ for } t = -\infty.$$

Using these conditions one can show that $\dot{\sigma}_t = 0$ by substituting (i) to (iii) into equations shown in expression (14.1) after obtaining the values for \hat{K}_t and \hat{K}_t^* .

revenues earned by the subsidiary (F' at the margin) are taxed at the host country's corporate tax rate (u) plus the additional repatriation tax imposed on net revenues by the home country when dividends are remitted (this is reflected in the "tax adjusted" dividend payout ratio). This additional repatriation tax results from two sources. First, when more capital investment is undertaken by the subsidiary, additional taxes equal to the difference between home and host country statutory tax rates are levied. (This is the "taxable income" effect obtained by differentiating the numerator of the repatriation tax, χ , in expression (9)). Second, with more investment, the tax base used to calculate the repatriation tax is broadened (Y in equation (10)). This "base-broadening" effect causes the repatriation tax to fall by $\sigma(1-u)$.

The present value of depreciation allowances also depends on the repatriation tax. When the subsidiary claims capital cost allowances due to investment in the host country it lowers both host country corporate and home country repatriation taxes each year. With increased tax depreciation allowances claimed in the host country, the host country tax and repatriation tax (via the foreign tax credit) is affected (first term of the expression for A) as well as the home country tax on gross-of-credit foreign source income (the second term of the expression for A). Again, two impacts can be distinguished: "deduction" and "base-broadening" effects. With more tax depreciation claimed for the host country tax, foreign tax credits are reduced when income is remitted, thereby increasing the repatriation tax by $du\alpha$. However, the tax depreciation is claimed for the host country tax, the repatriation tax base is narrowed reducing the value of tax depreciation deduction by $du\alpha\sigma$. A similar reasoning applied to the second term for A . More investment leads to additional tax depreciation claims valued by $u^*\alpha^*$. However, tax depreciation narrows the repatriation tax base lowering home country tax depreciation claims by $\sigma u^*\alpha^*$.

In addition, the discounting of the value of tax depreciation allowances differs. Host country depreciation allowances are discounted by the multinational's home country nominal cost of finance, $\rho/(1-c)$, taking into account the anticipated devaluation in the host country currency relative to the home country currency ($\pi - \pi^*$). Home country tax depreciation is only discounted by the nominal cost of funds expressed in home country terms. The reason for the differences in discounting arises from the computation of the capital cost allowances bases, $\hat{x}_t \hat{K}_t$ and \hat{K}_t^* . If the host country's currency is depreciating, the undepreciated investment expenditures carried for calculating host country taxes also decline, reducing the present value of tax depreciation as reflected in a higher cost of finance ($\rho/(1-c) - \pi^* + \pi$). On the other hand, tax depreciation allowances for home country purposes are calculated by converting investment expenditures into home country currency before depreciating the tax base.

The Hartman result can be restored in three ways. The most obvious is the situation when the company does not remit any dividends whatsoever ($d=0$). In the steady state ($\dot{K}=0$), this requires replacement investment to be more than the net-of-host-country-tax profitability. The second case which restores the Hartman result is to introduce a constraint that, if the multinational has excess foreign tax credits on dividends, none or a limited amount may be credited against other taxes. If this constraint is binding in all periods, the repatriation tax rate is unaffected by marginal investment and financing decisions of the subsidiary. The third case is the most interesting. If tax bases are equivalent, requiring $\alpha=\alpha^*$ and $\pi=\pi^*$, σ is exogenous. By substituting $\sigma=(u^*-u)/(1-u)$ into the cost of capital expression, one may obtain:

$$F' = \frac{(\delta + \rho/(1-c) - \pi^*)}{(1-u)} \left[1 - \frac{u\alpha}{\rho/(1-c) + \alpha} \right] \quad (15')$$

This is the familiar cost of capital expression which would be obtained under the Hartman result. In this case, the home country's tax system may affect the cost of capital only through the discount rate of the parent.⁸

The foregoing analysis provides three other results that are contrary to past literature. First, the cost of capital of the foreign subsidiary depends on the difference between host and home country statutory tax rates, not average tax rates (taxes divided by profits) as sometimes used in the literature. (See, for example, Hartman (1986) and Grubert and Mutti's (1989) recent study of foreign investment). Even if the subsidiary is in an excess foreign tax credit position, with respect to dividends, the cost of capital will depend on the negative value of the repatriation tax so long as tax credits are used against taxes paid on other forms of income. When the subsidiary uses one more unit of capital stock, it increases the value of excess foreign tax credits and reduces the amount of tax owing on other forms of income. This can contribute to a lower cost of capital.

Second, the above analysis also suggests that a cash flow tax imposed by the host country may not be neutral for multinationals operating from countries using the deferral system. This is contrary to the usual argument that a host country's cash flow tax would be neutral with respect to investment, with the cash flow tax possibly being credited against foreign taxes on remitted income. (See for example, Boadway, Bruce and Mintz [1987] and Bird and McLure [1990]). If the host country imposed a cash flow tax, the cost of capital would be the following:

8/ This is related to the treatment of capital gains which may be taxed by the home country by treaty provision. Also, if the parent finances capital with debt raised in the home country, the $\rho = i^*(1-u^*)$.

$$F' = \frac{(\delta + \rho / (1 - c) - \pi^*)}{(1 - \bar{u})} [1 - A] \quad (15'')$$

$$\bar{u} = u + d[u^* - u - \sigma(1 - u)]$$

$$A = u(1 - d(1 - \sigma)) + d\alpha^*(u^* - \sigma) / (\rho / (1 - c) + \alpha^*)$$

Even with a cash flow tax in the host country, the tax rate, u , would influence the cost of capital through \bar{u} , σ and A . Neutrality of the host country tax can be restored, however, if there are no dividend repatriations ($d=0$) or if the home country also uses a cash flow tax.

Finally, the above analysis suggests that there may be a unique debt decision for the subsidiary whereby the net-of-tax costs of debt and equity finance are equal to each other. Using the first order condition for the local debt decision of the subsidiary (equation (14.4)), we obtain the following equilibrium decision for the optimal debt policy:

$$i(1 - \bar{u}) - \pi = \frac{\rho}{(1 - c)} - \pi^* \quad (16)$$

The cost of local debt finance is the interest cost net of host and home country taxes. Debt deductions in the host country lowers corporate taxes paid in the host country by u and repatriation taxes on remitted dividends by $d(u^* - u - \sigma(1 - u))$. In equilibrium, the optimal debt decision requires the equality of the cost of the multinational's equity and debt finance although the intuition underlying this is somewhat complicated to explain. When the subsidiary incurs an extra dollar of interest costs, it reduces the rate of repatriation tax, σ , through the "deduction" effect if $u^* > u$. However, interest deductions causes a "base narrowing" effect in the the repatriation tax rate rises by $\sigma(1 - u)$. If the "deduction" effect dominates the "base narrowing" effect (or vice versa), $u^* - u - \sigma(1 - u) > 0$ (< 0).

In addition, bond finance lowers the amount of dividends repatriated abroad in the steady state. By issuing debt, the amount of dividends remitted falls, reducing the tax advantages of interest deductions against the repatriation tax when $u^* - u - \sigma(1-u) > 0$ (implying $\hat{u} > u$). The second order condition for the debt decision, evaluated at the steady-state conditions, is thus quite instructive. Differentiating (14.4) with respect to B, yields:

$$\frac{\delta^2 E}{\delta B^2} = \frac{-i^2(1-u)}{Y^r} [u^* - u - \sigma(1-u)] \frac{(1-\dot{u})}{(1-u)} \quad (16')$$

For an interior solution for debt policy, the expression in (16') must be negative implying $u^* - u - \sigma(1-u) > 0$. If the home country tax rate is more than the host country's ($u^* > u$), the repatriation tax, σ , which depends on tax rates and capital cost allowances, can be negative or positive for an interior solution. If $u^* > u$, the repatriation tax must be negative for an interior solution. In fact, at the steady state, the impact of interest deductions on the repatriation tax depends on capital cost allowances. Substituting equations (9) and (10) into σ yields for $u^* - u - \sigma(1-u)$:

$$\alpha^* K^* - \alpha K e^{-(\pi - \pi^*)t} > 0.$$

That is, the value of the capital cost allowances, in home currency, must be greater under the home country tax compared to the host country tax. Note if the tax bases and inflation rates are the same for host and home country taxes, the second order condition will be equal to zero, implying that the firm is indifferent about financial policy. And, if capital cost allowances are large in the host country, the second order condition will imply that the debt policy minimizes the value of the firm. If we imposed restrictions on debt (i.e. debt cannot be negative or debt can be no more than capital stock), the firm would either move to all debt or all equity finance.

The specification of the discount rate of the multinational has not been made clear yet. Essentially, the discount rate, ρ , depends on the source of finance used by the parent. If equity is used, the $\rho = \rho^*$ whereby ρ^* is the opportunity cost of equity finance for the parent in the home country (this cost of equity finance is gross of personal taxes paid by individual investors). If debt finance is used by the parent, the $\rho = i^*(1 - u^*)$, the net-of-corporate tax cost of debt finance in the home country.⁹ As with other models, this model does not give an explicit analysis of optimal financing decisions of the multinational. We would need to rely on some additional assumptions such as bankruptcy costs or tax losses to derive a unique financial policy for the parent firm.

II. Exemption of Foreign-Source Income by the Home Country

If a home country exempts the foreign source income of the resident parent company, the above analysis can be easily amended as follows. The value of dividends earned by the subsidiary in the host country prior to payment of withholding taxes to the host country (equations (1) through (4)) remains the same. The amount of taxes imposed on remitted income is the withholding tax assessed by the host country, θD^* , as denoted in home country currency. Since the foreign-source income is exempt from the point of view of the home country, the value of dividends received by the parent is:

9/ As mentioned above some countries, like the United States, may disallow interest costs, incurred by the parent to finance investments by the subsidiary, to be deducted from the home country's corporate tax. Instead, the interest costs may be attributed to the subsidiary implying that the parent's discount rate cannot equal to the net-of-home country tax interest rate.

$$D_t^h = D_t^*(1-\theta). \quad (12')$$

The parent maximizes the discounted value of net-of-withholding tax dividends as in equation (13) (where $\sigma_t = \theta$). The control variables are K_t , \hat{K}_t , and B_t . Financial policy must be constrained in this problem to prohibit the multinational from issuing unlimited amounts of debt. It is assumed that debt finance can be no more than the value of the firm and no less than zero. This problem yields the following results:

a. User Cost of Capital

The user cost of capital obtained for the case of exemption is the following:

$$F' = \frac{(\delta+R-\pi^*)}{(1-u)} [1 - A] \quad (15')$$

$$R = \text{Min} \{ \delta(1-u), \rho/(1-c) \}$$

$$A = \frac{u\alpha}{\alpha+R-(\pi^*-\pi)}$$

For investments made by multinationals resident in countries that exempt foreign-source income, the user cost of capital is much less complicated than that obtained for the deferral case. It is also more familiar since it is quite similar to the usual formulation found in the literature. There are, however, two adjustments to the user cost of capital in this context that are not well known. The first is that the discount rate of the multinational is the nominal financial cost of finance adjusted for the home country's inflation rate. The second adjustment is that the present value of tax depreciation allowances for the multinational is discounted by the nominal cost of finance net of capital gains earned by holding wealth in the host country's currency. With respect to the real

capital gains due to currency appreciation, note that under purchasing power parity, capital gains on securities are equal to $(\pi^* - \pi)$ for each unit of the host country's currency. This term is used in discounting tax depreciation allowances since appreciation in the value of the host country's currency increases the value of the tax depreciation allowances in the home country's currency.

b. The Cost of Finance

As indicated above in expression (15'), the cost of finance, R , is the minimum of the cost of debt finance raised in the host country ($i(1-u)$) or the cost of equity finance for the multination ($\rho/(1-c)$) with c the capital gains tax, if there is one, imposed by the host or home country). In principle, the multinational uses the least cost form of finance. If the multinational parent finances its capital with debt raised in the home country, then $\rho = i^*(1-u^*)$. This implies that debt finance is raised in the host country only if $i(1-u) < i^*(1-u^*)$ or vice versa. If the multinational parent's cost of equity finance at home, ρ^* , then the optimal choice of finance depends on minimum cost of ρ^* , $i^*(1-u^*)$ and $i(1-u)$.

The artificial bounds imposed on financing decisions ensures that the multinational prefers one form of finance or another. Unlike the case of deferral which leads to an optimal debt policy, the financial decision in this model leads to corner solution when taxes imposed on equity and debt income are different. Imposing artificial constraints, however, is not satisfactory. One would like a model to explain financial choices without imposing artificial constraints on financing. As discussed earlier, in an alternative model that incorporates bankruptcy costs or tax losses, a more satisfactory determination of financial policy can be obtained. In particular, in the presence of bankruptcy cost, the discount rate may be a

weighted average of the cost debt and equity finance, the weights being the proportion of capital financed by debt for equity.

III. Full Taxation of Foreign Source Income by the Home Country

The final case to be examined here arises with respect to the full taxation of foreign-source income of a parent's operation in another country. This case particularly applies to branches of a parent in that most countries allow a parent to credit foreign corporate income taxes against the taxes levied by the home country on foreign-source profits. Unlike the case of deferral, all income, as measured by the home country, is taxed whether or not the income is remitted. Host countries also apply a withholding tax on the branch profits regardless of whether the profits are remitted.

The model for full taxation of foreign-source income requires earlier expressions in Section I to be amended as follows. First, the foreign tax credit expression of equation (6) no longer depends on the dividend payment of the subsidiary to the parent. Instead, the foreign tax credit is equal to corporate income and withholding taxes paid to the host country on branch profits as defined by the host country:

$$FTC_t = T_t x_t + \theta' \Pi_t x_t \quad (6'')$$

with θ' denoting the withholding tax on branch profits and Π_t denoting taxable income of the branch profits as defined by the host country (the expression in the parenthesis of equation (2)).

The home country allows the taxes to be credited against taxes assessed on branch profits. Taxes on foreign-source branch profits levied by the home country, net of the foreign tax credit, are equal to the following:

$$T_t^* = u^* \Pi_t^* = u^* (e^{\pi^* t} F[K_t] - \alpha^* \hat{K}_t^* - i B_t x_t) - FTC_t \quad (7'')$$

whereby \hat{K}_t^* is the base for capital cost allowance defined in equation (9).

The parent maximizes the present value of dividends received over time. Dividends are equal to the net-of-withholding tax income received from the branch operating in the host country, $D_t^*(1-\theta')$, net of taxes paid to the home country (expression 7''). The value of equity in this case is equal to the following:

$$E_0 = \int_0^{\infty} e^{-\rho t} \{ D_t^* (1-\theta') - T_t^* - c \dot{E}_t \} dt$$

Since the corporate and withholding taxes paid to the host country are credited against home country tax all terms associated with θ' and \hat{K} drop out. The only control variables are K_t , \hat{K}_t^* , and B_t . The first order conditions obtain for this problem are rearranged and reported below.

The User Cost of Capital: Full Taxation to Foreign-Source Income

The user cost of capital for the case of full taxation of foreign-source income is the following:

$$F' = \frac{(\delta + \rho - \pi^*)}{(1 - u^*)} (1 - A^*) \quad (15'')$$

with $A^* = u^* \alpha^* / (\alpha^* + \rho)$.

The user cost of capital in this case depends only on tax parameters relevant to the home country, not the host country. We note that tax depreciation allowances are not discounted by a rate inclusive of real capital gains earned by holding wealth in the host country. The reason for this is that the tax depreciation allowance base, \hat{K}_t^* , is denominated in home country currency.

As a final point the cost of finance for the parent, ρ , depends on the sources of finance, debt or equity, raised in the home country. The cost of finance is either the minimum of $i^*(1-u^*)$ or $\rho^*/(1-c)$ or weighted average of these two net-of-corporate tax costs of finance. As discussed above, the appropriate discount rate depends on the type of equilibrium attained in financial markets.

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